

**Internal distribution code:**

- (A) [ ] Publication in OJ  
(B) [ ] To Chairmen and Members  
(C) [X] To Chairmen

**D E C I S I O N**  
of 7 June 1994

**Case Number:** W 0005/94  
**Application Number:** PCT/US 93/04628  
**Publication Number:** -  
**IPC:** C08F 4/02

**Language of the proceedings:** EN

**Title of invention:**

Method for making and using a supported metallocene catalyst system

**Applicant:**

Exxon Chemical Patents Inc.

**Opponent:**

-

**Headword:**

-

**Relevant legal norms:**

PCT Art. 3(4)(iii)  
PCT R. 13.1, 13.2, 40.1, 40.2(c) and (e)

**Keyword:**

"Unity (affirmed) - doubtfulness of lack of novelty objection giving rise to a posteriori disunity"

**Decisions cited:**

G 0002/89

**Headnote/Catchword:**



Europäisches  
Patentamt

European  
Patent Office

Office européen  
des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: W 0005/94  
International Application No. PCT/US 93/04628

**D E C I S I O N**  
of the Technical Board of Appeal  
of 7 June 1994

**Applicant:** Exxon Chemical Patents Inc.  
P.O. Box 5200  
Bayton, Texas 77522 (US)

**Representative:** -

**Subject of the Decision:** Protest according to Rule 40.2(c) of the Patent Cooperation Treaty made by the applicant against the invitation (payment of additional fee) of the European Patent Office (branch at The Hague) dated 8 November 1993.

**Composition of the Board:**

**Chairman:** F. Antony  
**Members:** P. Kitzmantel  
M. Schar

## Summary of Facts and Submissions

I. International application PCT/US 93/04628 comprising 22 claims was filed on 17 May 1993.

II. Claims 1 and 18 of this application as filed read as follows:

Claim 1:

"A method to produce a supported metallocene catalyst system comprising the steps of:

- (a) contacting a metallocene, an activator and a porous carrier in a suitable solvent;
- (b) removing the solvent so as to remove the solvent from the pores of the carrier to create a supported catalyst."

Claim 18:

"A process to produce polyolefins comprising contacting one or more olefins containing from 2 to 20 carbon atoms under polymerization conditions with the supported catalyst of claims 1 or 2."

Claim 3 is a formally independent claim, materially dependent upon Claim 1.

Claims 2 and 4 to 17 are each directly or indirectly dependent upon Claim 1, and Claims 19 to 22 are dependent upon Claim 18.

III. On 8 November 1993 the European Patent Office, acting as International Search Authority (ISA), invited the Applicant to pay an additional search fee within a time limit of 45 days, because - in contravention of the

requirement of unity of the invention according to Rules 13.1 and 13.2 PCT - the application comprised the following two inventions:

1. Claims 1-17: Methods to prepare supported metallocene catalysts;
2. Claims 18-22: Polymerisation processes using these catalyst systems.

The reason for this finding of the ISA was stated as being essentially that the process according to Claim 1 and the resulting products (supported catalysts) were not novel over EP-A-313 386, thereby depriving a posteriori Claims 1 and 18 of their only common, and at the same time novel, technical feature. The lack-of-novelty objection was based on the alleged equivalence of the drying steps performed according to the present application and to Example 1 of the said citation leading thereby to the same degree of solvent removal from the pores of the carrier.

- IV. With its response of 7 December 1993 the Applicant paid the additional search fee under protest, requested a refund of this fee, offered amended claims and presented its arguments against the non-unity objection of the ISA.
- V. On 16 February 1994 the ISA communicated to the Applicant the result of its review under Rule 40.2(e) PCT, according to which its invitation of 8 November 1993 (cf. section III. above) was completely justified, and invited the Applicant to pay within one month a protest fee of DEM 2 000,-.

- VI. The Applicant paid the protest fee in due time thereby maintaining its request for a refund of the additional search fee.

**Reasons for the decision**

1. The protest is admissible.
2. The present decision is based upon the claims as originally filed.

In view of the whole content of the application there can, however, be no doubt that the reference in Claim 18 to the "supported catalysts of claims 1 or 2" must be interpreted as referring to the "supported catalysts obtained by the methods of claims 1 or 2".

3. Claim 1 specifies as step (a) that a metallocene, an activator (typically alumoxane) and a porous carrier are contacted "in a suitable solvent", and as step (b) that the solvent is removed to an extent including removal from the pores of the carrier.
4. According to EP-A-313 386 a metallocene (zirconium compound) is contacted with a porous support (typically a silica carrier) which previously has been treated with an alumoxane solution (Claim 1; p. 3, l. 23 to 63). According to Example 1, in order to get a solid catalyst, the resulting slurry is dried under reduced pressure at 40 °C for 1 hour and additionally at 85 °C for 1 hour.
5. The lack-of-novelty objection of the ISA against Claim 1 of the application was based on the alleged equivalence of the drying steps in the application and in the citation and implied that the preceding preparation of

the catalyst slurry in the citation fulfilled the conditions set out in said Claim 1. This conclusion was apparently based on the understanding that the wording "contacting a metallocene, an activator and a porous carrier in a suitable solvent" in Claim 1 encompassed the pre-reaction of activator and carrier disclosed in the citation.

However, this conclusion is not supported by the facts: while the wording "contacting a metallocene, an activator and a porous carrier in a suitable solvent" may be understood by a skilled person to embrace any sequence of bringing together these various components - thus also the alternative of pre-contacting activator (alumoxane) and carrier before adding metallocene to the so obtained reaction mixture -, said wording is inconsistent with the method of Example 1 of the citation according to which a silica carrier is caused to react at 60 °C for 1 hour with an alumoxane solution, rinsed with toluene to remove unreacted alumoxane and only thereafter combined with a zirconium metallocene; the difference between the claimed method and the one of Example 1 of the citation being that the latter does not allow for any reaction between free metallocene and free alumoxane molecules, which must take place in the method of present Claim 1, even when alumoxane and silica carrier are contacted prior to the addition of metallocene, because the wording in Claim 1 "contacting a metallocene, an activator and a porous carrier in a suitable solvent" implies individual reactions between all of the three components.

Owing to the different sequence of reactions in Example 1 of the citation and according to Claim 1 of the application, the bonding structure between the three components metallocene/alumoxane/carrier should, in all probability, be different, because - contrary to the

situation according to the present application - in the case of Example 1 of the citation bonding sites have been exhausted by the pre-reaction of carrier and alumoxane which are then no longer available for the reaction with the metallocene.

As a consequence, the method of preparing the supported metallocene catalyst of Example 1 in the citation does clearly not anticipate the process of Claim 1, irrespective of the question of whether or not the drying steps are equivalent. Moreover, the supported metallocene catalysts resulting from the process of Example 1 of the citation are likely to be different from those resulting from the claimed process.

The lack-of-novelty objections of the ISA against the process of Claim 1 and the products obtained thereby are therefore not well-founded.

6. While it was held in the Enlarged Board Decision G 2/89 (OJ EPO 1991, 166) that the ISA is entitled to request a further search fee where the international application is considered to lack unity of invention "*a posteriori*", it was also held that such a request should only be made in "clear cases" and, in view of the Applicant having had no opportunity to comment, "the ISA should exercise restraint in the assessment of novelty and inventive step and in borderline cases preferably refrain from considering an application as not complying with the requirement of unity of invention on the ground of lack of novelty or inventive step" (G 2/89, Reasons 8.2).
  
7. As set out in paragraph 5 above, the methods of treatment of the porous carrier with metallocene and alumoxane (activator) according to Claim 1 of the

application and according to the citation are different, and there is considerable doubt as to the identity of the resulting treated carriers.

In view of these doubts, and considering that the ISA's finding of non-unity hinges solely upon the point whether the supported metallocene catalyst resulting from the process of Claim 1 can be acknowledged as a novel "special technical feature" common to Claims 1 and 18 in the sense of Rule 13.2 PCT, the Board arrives at the conclusion that, following the principles explained in G 2/89 (cf. paragraph 6 above), the ISA's invitation was not justified.

8. In its examination of the protest against the invitation to pay an additional search fee, the Board must not take into consideration any new reasons brought forward in the ISA's review of the justification for the above mentioned invitation (Rule 40.2 (c) to (e) PCT), particularly because any such new reasons could not have been considered by the Applicant in his protest against the said invitation and because the Board's task, by letter of the law (Rule 40.2 (c) PCT, 2nd sentence), is limited to the examination of "the protest". Reference is made, in this connection, to the Board's Decision W 11/93 of 31 March 1994, Reasons 3 (not published in the OJ EPO).

This means that in deciding on the protest, the reasons of the ISA's notification dated 16 February 1994 must be disregarded.

9. For the reasons set out above the additional search fee paid cannot be retained.

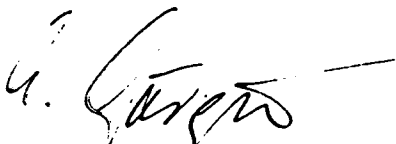


**Order**


**For these reasons, it is decided that:**

The additional search fee paid and the protest fee shall be refunded.

The Registrar:

  
E. Gorgmaier

The Chairman:

  
F. Antony