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File No.: T 0785/91 - 3.3.3
Application No.: 83 303 652.8
Publication No.: 0 099 660
Classification: C08F 10/02
Title of invention: Co-catalyst dispersion method

D E C I S I O N
of 5 March 1993

Applicant: Cities Service Company
Proprietor of the patent: -
Opponent: Hüls Aktiengesellschaft
BASF Aktiengesellschaft
Union Carbide Chemicals and Plastics Company
Inc.

Headword: -

EPC: Art. 54, R. 68(2)

Keyword: "Novelty (yes)" - "Substantial procedural violation (yes)" -
"Unjustified departure from established jurisprudence by
disregarding auxiliary request (point 6)"

Headnote
Catchwords



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Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0785/91 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 5 March 1993

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office of 10 July 1991, issued on
13 August 1991, revoking European patent
No. 0 099 660 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: F. Antony
Members: H.H.R. Fessel
 F. Benussi

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 099 660 in respect of European patent application No. 83 303 652.8 filed on 24 June 1983 and claiming a US priority of 12 July 1982 (US 397 656) was announced on 12 November 1986 (Bulletin 86/46). The patent was granted with 10 claims, of which Claim 1 read as follows:

"A method of adding a co-catalyst under operating conditions to a reactor producing polyolefin using a Ziegler-type catalyst characterised in that the co-catalyst is added to a gas phase fluidized bed in the reactor in a polymerizable olefin."

II. Notices of opposition were filed on

- 27 February 1987 by Hüls AG,
- 24 June 1987 by BASF AG (hereinafter Respondent 01),
and
- 31 July 1987 by Union Carbide Chemical and Plastics Company Inc. (hereinafter Respondent 02).

The oppositions were supported by numerous documents, inter alia by

(UC1) JP-A-48-43083 in the form of an English translation,

being the only citation to be dealt with in appeal proceedings.

III. By its decision given at the end of oral proceedings held on 10 July 1991 and issued in writing on 13 August 1991, the Opposition Division revoked the patent for

lack of novelty of Claim 1 of a main request of the Patentee (Appellant) then before it.

- IV. The decision held that the provisions of Article 123(2) and (3) EPC were met, but that the claimed subject-matter was anticipated by (UC1), as demonstrated in a list of features of Claim 1 of the main request with reference to a number of passages identified by page/line numbers of (UC1). It was stated that a feature had to be regarded as disclosed even if it was not exemplified but merely listed in a description.

The Opposition Division did not consider an auxiliary request and stated in its decision: "since the Patentee did not withdraw his request to maintain the patent on the basis of Claim 1 as amended during the oral proceedings (i.e. his main request), the Opposition Division had to take the decision to revoke the patent ...".

- V. On 11 October 1991 an appeal was lodged against said decision, together with payment of the prescribed fee. The Statement of Grounds of Appeal was filed on 20 December 1991 wherein the Appellant contested the findings of the decision under appeal. He regards it as a procedural violation by the Opposition Division that the auxiliary request had not been considered; by withdrawing the main request he would have deprived himself of his right to appeal a rejection of the main request. As to novelty he argued that (UC1) did not describe adding a Ziegler-type catalyst (i.e. both components on a carrier) and also, in the same process at a separate point, liquid co-catalyst substance. This was what was claimed in the present claim. Besides, (UC1) could not be regarded as the closest prior art since it did not relate to a process of the general type to which the present invention relates (i.e. separate

additions of one Ziegler-type catalyst and two co-catalysts).

- VI. Opponent Hüls AG did not file any comment, whereas Respondents 01 and 02 essentially maintained their previous arguments with reference to the relevant passages of the decision under appeal. Respondent 02 additionally disputed sufficiency of disclosure (Article 83 EPC).

As to inventive step both Respondents denied the presence thereof for the subject-matter as claimed in the main request.

- VII. During oral proceedings held on 5 March 1993, the Board informed the parties that the procedure taken by the Opposition Division to revoke the patent in suit on the basis of its opinion that Claim 1 of the main request lacked novelty, without apparently examining the present auxiliary request, was in conflict with what is now established jurisprudence of the Appeal Boards and, as such, constitutes a substantial procedural violation. For this reason alone, the decision under appeal would have to be set aside and the appeal fee reimbursed. However, in exercising the discretionary power provided by Article 111(1) EPC, in the interest of expediency, the Board intended itself to decide the issue of novelty of the subject-matter of the Appellant's main request, and only then to remit the case to the Opposition Division, for further examination of the opposition.

- VIII. The Appellant requested that the decision under appeal be set aside and that the case be remitted to the Opposition Division for further prosecution on the basis of the main request submitted during the oral proceedings of 5 March 1993 and of the auxiliary request submitted during the oral proceedings of 10 July 1991.

The main request comprises a set of eight claims, of which the only independent Claims 1 and 8 read as follows:

"1. A method of adding co-catalyst under operating conditions to a gas-phase fluidised bed reactor, in which

gaseous olefin to be polymerised flows upwardly through a polymer reaction bed in said reactor, from a gaseous olefin input feed, to fluidise the polymer reaction bed;

a supported Ziegler-type catalyst is added to the polymer reaction bed during the operation, to cause continuing polymerisation therein, and

a liquid co-catalyst substance is added to the polymer reaction bed during the operation, separately from the gaseous olefin feed and separately from the Ziegler-type catalyst, to activate the Ziegler-type catalyst so as to increase the rate of polymerisation;

characterised in that

the liquid co-catalyst substance is formed into a mixture or solution with a liquid olefin that is to be polymerised in the reaction, and the resulting liquid is introduced into the reactor.

8. A method of adding an aluminium alkyl co-catalyst to a gas-phase fluidized-bed polyolefin reactor at the operating conditions of about 50-110°C (125-225°F) and 1.4 - 4.1 MPa (200-600 psig), using a Ziegler-type catalyst, comprising the steps of

(a) mixing the aluminium alkyl with the monomer or co-monomer olefin, forming a dilute solution wherein the olefin/co-catalyst weight ratio varies from 100,000:1 to 10:1, and

(b) introducing the solution of co-catalyst and olefin into the reactor, at a reaction-sustaining rate

such that the polymer yield based on aluminium is greater than 15,000."

- IX. Respondents 01 and 02 requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. It is the considered view of the Board, not disputed by the parties, that the term "Ziegler-type catalyst" will be understood by a skilled person to mean mixtures of at least two components, i.e. an organometallic compound (e.g. trialkyl aluminium) and a compound derived from a transition metal (e.g. titanium trichloride). The Board is satisfied that the method claimed in Claim 1 of the main request, viz. adding a co-catalyst to a gas-phase fluidised bed reactor under operating conditions producing polyolefin using a Ziegler-type catalyst, is supported by the patent specification as originally filed (Article 123(2) EPC). With the exception of the introduction of the term "separately", this has not been disputed by the Respondents.
 - 2.1 The Board is equally satisfied that the disputed term "separately" is supported by the drawing in conjunction with page 3, line 25 to page 4, line 12 of the original documents (Figure 1 and column 2, lines 28 to 45 of the patent specification). It is true that, while the drawing shows the addition of a "catalyst" and a "co-catalyst mixed with liquid olefin" on different spots of the reactor, it does not explicitly specify that the so-called "catalyst" is a Ziegler-catalyst within the meaning of Claim 1. However, the wording of original Claims 1 and 2 read in the light of original page 4,

lines 5 to 9 and the drawing, makes it clear that there is a continuous product take-off (i.e. of particles containing catalyst), necessitating addition of fresh catalyst (exemplified by a supported Ziegler catalyst) to the reactor at one place, and co-catalyst separately therefrom. This does not permit an interpretation such as that of the Respondents that the fresh catalyst exemplified as "supported Ziegler catalyst", is a catalyst devoid of any organometallic compound such as, e.g. an aluminium organic compound and consisting merely of the transition metal component of a Ziegler catalyst. The "catalyst" referred to in line 8 on page 4 of the original specification (column 2, line 40 of the patent specification) and in the drawing would be understood by a skilled person as being identical with the "Ziegler catalyst" specified in the next preceding line 6.

Those passages of the specification cited by the Respondents to support their view (cf. e.g. column 2, lines 61 to 65, column 4, lines 31 to 33 and 44 to 46), are far from being clear and cannot change the aforesaid interpretation.

2.2 Also the provisions of Article 123(3) EPC are met by Claim 1 of the main request since the protection conferred by said claim is not extended vis-à-vis the claim as granted and supported by the description, especially Figure 1.

3. Within the nine-month opposition term, neither the Opponent Hüls, nor Respondent 02 has made any reference to the opposition ground of Article 100(b) EPC, i.e. allegedly insufficient disclosure. Nor has Respondent 01 done so in its Notice of Opposition proper, although an unsubstantiated reference thereto was made in the penultimate paragraph on page 1 of the accompanying "Anlage 1".

On 4 October 1991, the President of the EPO referred the following point of law to the Enlarged Board of Appeal (cf. OJ EPO 1992, 9):

Is the Opposition Division in the examination of the opposition obliged to consider all the grounds for opposition referred to in Article 100 EPC or is this examination restricted to the grounds referred to by the opponent in his statement of grounds of opposition?

By implication this question applies not only to the Opposition Division, but to the Technical Appeal Boards as well. At the time this Decision was taken, the above referral was still pending before the Enlarged Board under reference No. G 10/91.

In view of this situation, while there have been arguments by the parties at the appeal stage on the point of sufficiency of disclosure, the Board does not wish to decide it. As the case, for different reasons which will follow, has to be remitted to the Opposition Division for further examination, it will be left to the Opposition Division to decide, in the light of the opinion of the Enlarged Board which will by then be available, whether, and in which manner, to deal with the said point.

4. A comparison of the literal wordings of Claim 1 of the main request of the disputed patent and of the only claim of (UC1) leads to the result that three features are not mentioned in the claim of said prior art, viz. the addition of

(a) a supported Ziegler-type catalyst, and

- (b) separately from the Ziegler-type catalyst - and the gaseous olefin feed - a liquid co-catalyst into
- (c) a fluidised bed reactor.

A written description within the meaning of Article 54(2)EPC does, however, comprise the teaching given in a document as a whole. This means in the present case that the complete teaching given by (UC1) has to be taken into account.

- 4.1 On the basis of such whole contents approach and having in mind the arguments provided by the parties and the reasons of the decision under appeal, the Board has come to the conclusion that feature (b) is clearly not disclosed in (UC1), for the reasons given below.
- 4.2 According to (UC1), just like the patent in suit, the monomer to be polymerised is used to mix or dissolve a component of a "Ziegler-type catalyst".

Components of the "Ziegler-type catalyst" which (UC1) teaches to suspend or dissolve in the olefin to be polymerised are titanium trichloride as transition metal component or triethylaluminium as reductive metal compound; see page 4, lines 1 and 2 in conjunction with page 6, (Addition of Catalyst), especially lines 32 to 34. A list of further suitable reductive metal components is given on page 5, lines 4 to 7. On page 4, lines 18 to 20 the term "Ziegler-type catalyst" as used in the claim of (UC1) is defined as including "combinations of transition(al) metal compounds and reductive metal compounds as well as their modifications". This definition is in full conformity with the understanding of a man skilled in the relevant art.

The teaching given in (UC1) may thus be summarised as follows: Drawbacks hitherto known in gas-phase

polymerisation of olefins could be avoided when the two-component Ziegler-type catalyst or a component thereof is suspended or dissolved in a liquefied olefin to be polymerised.

4.3 As to the mode of addition of the so suspended catalytic components it is stated in the two sentences bridging pages 6 and 7 of (UC1) that, when the catalytic components are to be prepared as separate suspensions, the formation of the complete catalyst by their combination may be done outside or inside the reactor; in the latter case, each component may be added at different sites of the reactor. There is, however, neither any explicit nor any implicit disclosure in (UC1) to the effect that, **in addition to** the Ziegler-type catalyst, i.e. to the two-component mixture to which the man skilled in the art understands such term to refer, a liquid co-catalyst is separately fed into a fluid bed polymerisation reactor.

4.4 In addition to the afore-discussed difference concerning feature (b) the Board cannot derive from (UC1) any clear disclosure of a **combination** of features (a) and (c). A detailed discussion on this point is, however, unnecessary, as a difference concerning one feature is sufficient for establishing novelty.

4.5 For the reasons given above the subject-matter of Claim 1 of the main request is novel over (UC1). The same must apply to the dependent claims.

5. Since the question of any inventive step underlying the subject-matter of the main request has not yet been fully considered and the arguments provided by the Respondent, e.g. concerning productivity based on the aluminium content may need further discussion, the case is remitted

to the Opposition Division under Article 111 EPC for further examination.

6. As far as can be judged from the decision under appeal, the Opposition Division failed to consider the Appellant's auxiliary request.

It is not only a matter of fairness, but was also established jurisprudence of the Boards of Appeal by the time the decision under appeal was taken that, before issuing a negative decision solely on the basis of the patent proprietor's main request, the Opposition Division must ensure that the proprietor has expressly withdrawn all subordinate requests (cf. decision T 5/89 of 6 July 1990, OJ EPO 1992, 348, second paragraph of point 2.2, corrected translation of official text in German). As previously held in decision T 234/86 (OJ EPO 1989, 79, especially point 5.8), a decision must give reasons for every rejection of a request by the patent proprietor. As stated in the third paragraph of point 5.5.1 of the said decision, requiring that the text on which a decision is to be taken be submitted or agreed **unconditionally** would mean adding an extra provision to Article 113(2) EPC. Since, in the present case, the patent was revoked in its entirety without reasons given as to the non-allowability of the auxiliary request, the Opposition Division has contravened Rule 68(2) EPC. An unjustified departure from established jurisprudence constitutes a substantial procedural violation justifying reimbursement of the appeal fee in the present case where the appeal was held allowable and the decision under appeal was set aside.

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 continue examination of the oppositions on the basis of the main request submitted during the oral proceedings of 5 March 1993, and the auxiliary request submitted during the oral proceedings of 10 July 1991.
3. Reimbursement of the appeal fee is ordered.

The Registrar:

The Chairman:

E. Görgmaier

F. Antony