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**Datasheet for the decision  
of 2 February 2016**

**Case Number:** T 0224/12 - 3.3.03

**Application Number:** 02751077.5

**Publication Number:** 1434810

**IPC:** C08F297/08, C08F210/06

**Language of the proceedings:** EN

**Title of invention:**  
PROPYLENE RANDOM COPOLYMER

**Patent Proprietor:**  
Borealis Technology Oy

**Opponent:**  
SABIC Petrochemicals B.V.

**Headword:**

**Relevant legal provisions:**  
EPC Art. 54, 56, 83, 84, 123(2)  
RPBA Art. 12(2), 12(4), 13(3)

**Keyword:**

Admissibility of appeal - (yes) Party adversely affected  
Late filed ground not admitted- correct exercise of discretion  
by the opposition division  
Late-filed argument - adjournment of oral proceedings would  
have been required (yes)  
Main request - maintenance in amended form - yes

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

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Case Number: T 0224/12 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 2 February 2016**

**Appellant:** Borealis Technology Oy  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
2 December 2011 concerning maintenance of the  
European Patent No. 1434810 in amended form.**

**Composition of the Board:**

**Chairman** F. Rousseau  
**Members:** M. C. Gordon  
C. Brandt

## Summary of Facts and Submissions

I. The appeals lie from the interlocutory decision of the opposition division announced on 23 November 2011 and posted on 2 December 2011 according to which it was held that European patent number EP-B1-1 434 810 (granted on European patent application number 02751077.5, derived from international application number PCT/EP02/07081, published under the number WO 03/002625) could be maintained in amended form on the basis of the auxiliary request, filed by telefax of 21.11.2011.

II. The application as originally filed had 30 claims whereby claims 16, 17, 20, 22, 24 and 25 read as follows:

"16. A propylene random copolymer prepared by copolymerisation of propylene with a comonomer, the comonomer being ethylene or an  $\alpha$ -olefin comprising at least four carbon atoms, wherein the copolymer is having [*sic*] an elution interval determined according to the TREF [*Temperature Rising Elution Fractionation - note of the Board*] method of 50°C or more."

"17. A propylene random copolymer according to claims 13 to 16 having a melting temperature  $T_m$  of 135°C or higher."

"20. A propylene random copolymer according to claims 13 to 19 wherein the amount of components of said copolymer eluting at temperatures up to 90°C determined according to the TREF method is below 50 wt% of the whole amount of copolymer."

"22. A propylene random copolymer according to claims 13 to 21 wherein the total ethylene content is 3 wt.% or

more, preferably 5 wt% or more."

"24. A propylene random copolymer according to claims 13 to 23 wherein the xylene solubles content is from 4 to 24 wt.%, more preferred from 5 to 15 wt.% and still more preferred from 6 to 10 wt.%."

"25. A film comprising a copolymer according to any of claims 13 to 24."

The patent was granted with a set of 16 claims the details of which are not relevant for the present decision.

III. A notice of opposition against the patent was filed in which revocation of the patent on the grounds of Art. 100(a) EPC (lack of novelty, lack of inventive step) was requested.

*Inter alia* the following documents were cited in the course of the opposition proceedings:

D2: XU, J, Feng, L, European Polymer Journal 36  
(2000) 867-878

D3: EP-A-791 609

D5: Kakugo, M, et al Macromolecules, 1988, 21,  
2309-2313.

D6: Yang, Y. and Kong, X., Macromolecules, 1997, 30,  
7655-7660

D8: EP-A-982 328

D13: Soares, J.B.P. and Hamielec, A.E., Polymer, Vol.  
36, Nr. 8 pp. 1639-1654

IV. The decision of the opposition division was based on a main request, corresponding to the patent in the form as granted, and an auxiliary request, consisting of 7

claims, filed on 21 November 2011.

Claims 1, 3, 4, 5, 6 and 7 of the auxiliary request read as follows:

"1. A propylene random copolymer prepared by copolymerisation of propylene with a comonomer, the comonomer being ethylene,

wherein the propylene random copolymer has an elution interval determined according to the TREF method of 50°C or more; and

wherein the propylene random copolymer is produced by a Ziegler-Natta type catalyst system comprising a catalyst component, a cocatalyst component and an external electron donor, and

wherein the propylene random copolymer has an ethylene content of 6 wt.-% or lower; and

wherein the propylene random copolymer has a xylene solubles content from 5 to 15 wt.-%."

"3. A propylene random copolymer according to claims 1 or 2 having a melting temperature  $T_m$  of 135°C or higher."

"4. A propylene random copolymer according to claims 1 to 3, wherein the amount of components of said copolymer eluting at temperatures of up to 90°C determined according to the TREF method is below 50 wt.-% of the whole amount of copolymer."

"5. A propylene random copolymer according to claims 1 to 4 wherein the total ethylene content is 3 wt.-% or

more, preferably 5 wt.-% or more."

"6. A propylene random copolymer according to claims 1 to 5 wherein the xylene solubles content is from 6 to 10 wt.-%."

"7. A film comprising a copolymer according to any of claims 1 to 6."

V. According to the decision,  
The ground of Art. 83 EPC was not admitted to the procedure because the objections invoked were in fact clarity objections. Reference was made to G 10/91.

The document D13, cited by the proprietor, was admitted to the procedure.

The main request was held to lack novelty over the documents D3 and D8.

The decision and minutes record that the patent proprietor did not advance any comments in respect of the objections of lack of novelty raised in respect of the main request.

The auxiliary request was held to meet the requirements of the EPC.

The closest prior art was D3. The subject-matter claimed was distinguished by the specified TREF interval, which feature, as demonstrated by the examples and comparative examples of the patent, was associated with an unexpectedly lower 1% secant modulus, other film properties not being negatively influenced.

VI. Both parties filed appeals against the interlocutory decision and following submission of the respective

statements of grounds of appeal each party filed a further submission responding thereto.

In its statement of grounds of appeal, dated 26 March 2012, the patent proprietor pursued as the main request rejection of the opposition, i.e. maintenance of the patent in the form as granted

The opponent in its statement of grounds of appeal (3 April 2012) and a further letter dated 6 August 2012, constituting its reply to the statement of grounds of the patent proprietor, challenged the admissibility of the appeal of the patent proprietor. Objections pursuant to Art. 123(2) EPC, Art. 84 EPC, Art. 54. EPC and Art. 56 EPC were maintained. The non-admission of the ground of opposition pursuant to Art. 100(b) EPC was challenged.

The patent proprietor in its second letter of the appeal proceedings (8 October 2012) and hence subsequent to the second letter of the opponent, amended its requests, reverting, as the main request, to the claims in the form as upheld by the opposition division.

VII. The board issued a summons to oral proceedings and a communication setting out its preliminary opinion.

VIII. The opponent filed a further submission dated 15 December 2015.

A new objection of lack of novelty based on the published priority document of the patent in suit (application number 01115471.3) was raised. As evidence of the content of the priority document the granted patent EP 1 270 628 was submitted. Otherwise essentially the objections as set out in the earlier submissions



were maintained.

- IX. The patent proprietor made a written submission with letter of 17 December 2015, submitting 6 sets of claims forming a main request and five auxiliary requests.

Claim 1 of the main request corresponded to the auxiliary request underlying the decision under appeal with the difference that in claim 1 the third section, relating to the manner of preparation of the random copolymer, had been deleted.

As a consequence claim 1 read as follows:

"A propylene random copolymer prepared by copolymerisation of propylene with a comonomer, the comonomer being ethylene,

wherein the propylene random copolymer has an elution interval determined according to the TREF method of 50°C or more; and

wherein the propylene random copolymer has an ethylene content of 6 wt.-% or lower; and

wherein the propylene random copolymer has a xylene solubles content from 5 to 15 wt.-%."

The further claims 2-6 corresponded to dependent claims 3,4,5,6 and 7 according to the auxiliary request decided upon by the opposition division, with numbering and dependencies appropriately adapted.

The patent proprietor stated that it would not be represented at the oral proceedings

- X. Oral proceedings were held before the Board on 2 February 2016, attended only by the opponent.

In the course of the oral proceedings the opponent withdrew the objection of lack of novelty in respect of D8

- XI. The arguments of the appellant/patent proprietor in respect of the main request can be summarised as follows:

- a) The appeal of the patent proprietor was admissible.

No claims had been waived during the opposition procedure and the opponent had had sufficient time to advance arguments in respect of the granted claims.

- b) The ground of opposition pursuant to Art. 83 EPC should not be admitted to the proceedings.

- c) Art. 123(2) EPC

The features of claim 1 were based on the subject-matter of originally filed claims 16, 18 and 24, which claims were directly linked by dependencies. Further support was to be found in identified parts of the description as originally filed and in the examples.

- d) Art. 54 EPC

D3 did not disclose the TREF interval or the combination thereof with the specified xylene solubles content.

No submissions were made in respect of the objection of lack of novelty based on the non-validity of the invoked priority.

- e) Art. 56 EPC

The object of the patent in suit was to provide a propylene random copolymer with properties that could be fine-tuned by tailoring the comonomer

distribution, in particular having good optical properties for films.

D3 did not address this problem or any of the relevant properties (TREF, bimodal comonomer distribution, xylene soluble content).

Even if D3 had been taken into account, it was not obvious to modify this teaching to obtain polymers as now claimed.

XII. The arguments of the appellant/opponent can be summarised as follows.

- a) The appellant/patent proprietor had not advanced any arguments in support of the claims of the patent as granted before the opposition division. It was only in the statement of grounds of appeal that the patent proprietor - for the first time in the entire procedure - had submitted arguments in defence of the patent in the form as granted. Maintenance in the form as granted was however no longer sought. Instead claims corresponding essentially to the form as upheld by the opposition division, were being pursued. Consequently there was no adverse affect and, furthermore, the entire basis of the appeal had been removed.

Thus the appeal of the patent proprietor had to be seen as inadmissible.

- b) The main request of the patent proprietor was not admissible.

Apart from the request in the statement of grounds of appeal for maintenance of the patent as granted, throughout the entirety of the appeal proceedings, up until December 2015 the main request had been for maintenance of the patent in the amended form as upheld by the opposition

division. The new main request was, due to the deletion of the feature relating to the catalyst, slightly broader than said set of claims and had not been considered at first instance. The request could have been submitted earlier and appeared only to address part of the objections raised pursuant. Especially the requirements of Art. 123(2) EPC were not clearly met.

c) Art. 83 EPC

i) Admissibility of the ground

The ground had been raised in the light of amended claims filed by the patent proprietor.

It was unclear from the decision why the arguments advanced were considered to be objections pursuant to Art. 84 rather than Art. 83 EPC. If the objections had been considered to relate to Art. 84 EPC then the reference to G 10/91 in the decision was not understood. Furthermore it was not clear from the decision why the new ground was not considered to be *prima facie* relevant.

ii) Substantive aspects of the objection

The description of the TREF determination in the patent in suit was so vague that it was not possible for the skilled person to ascertain when a polymer as claimed had been prepared. Any measurement of a TREF interval would be associated with too great an uncertainty.

In particular it was not clear how the xylene soluble fraction would be taken into account in carrying out the determination of the TREF interval.

d) Art. 123(2) EPC

The features of claim 1 were recruited from a

number of different claims, which were not linked so as to provide a corresponding disclosure. On the contrary the features were the result of multiple selections of various alternatives within the claims.

e) Art. 54 EPC

i) D3:

The polymer of example 1 of D3 explicitly disclosed all requirements of operative claim 1 with the exception of the TREF elution interval, which, for the reasons put forward under Art. 83 EPC, could not be relied upon as a distinguishing feature. Furthermore, D3 employed a Ziegler-Natta catalyst which systems were known to yield polymers of broad molecular weight distribution which hence would necessarily be eluted over a broad temperature range. This information followed from D2 and D5.

ii) Lack of novelty with respect to the published priority document:

The claimed combination of xylene solubles and the ethylene content was not part of the priority document. The priority document had been published and the examples thereof were prior art pursuant to Art. 54(3) EPC.

At the oral proceedings this argument was further developed. Although the cited example of the priority document was also present in the patent in suit, the standard to apply was the invention as defined in the claims.

It was acknowledged that said objection could have been filed earlier. However it was only when preparing the case in response

to the summons that this matter had come to light.

The objection was however sufficiently relevant that it should be admitted.

f) Art. 56 EPC

The closest prior art was D3.

Accepting that the TREF interval represented a distinguishing feature, there was no evidence that this was associated with any technical effect. The examples of the patent did not allow a fair comparison to permit any effect arising from said feature to be identified.

Accordingly the objective problem to be solved was to prepare further polymers.

This problem would be solved in an obvious manner by - arbitrarily - modifying the polymer of D3 to obtain one with the specified TREF interval.

XIII. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained on the basis of the set of claims according to the main request or in the alternative on the basis one of the sets of claims according to the first to fifth auxiliary requests, all as filed with the letter of 17 December 2015.

XIV. The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked.

## **Reasons for the Decision**

1. Admissibility of the appeal
  - 1.1 The main request of the patent proprietor before the opposition division for rejection of the opposition was not allowed.
  - 1.2 According to the minutes of the oral proceedings before the opposition division (section 5) when novelty of the main request was discussed the patentee did not provide any arguments. The decision records in section 4.2 that the patentee did not contradict the novelty objections of the opponent against the main request.
  - 1.3 It is the position of the opponent that, due to the absence of arguments in support of the main request at any stage, the patent proprietor was not adversely affected by the decision.
  - 1.4 The position of the appellant/opponent is not supported by the law.

The patent proprietor's main request was refused by the meaning that the patent proprietor was adversely affected by the decision.

Thus the requirements of Art. 107 EPC are satisfied.
  - 1.5 The appellant/opponent appears in effect to argue that since the patentee did not advance arguments in support of the main request, it was not adversely affected.

However according to R.99 EPC the admissibility of appeal is determined by the notice of appeal. No provision exists in the EPC for basing a decision regarding the admissibility of an appeal on the nature or extent of the arguments advanced in support of a request during the first instance proceedings.

A possible sanction for presenting arguments which should have been presented before the first instance, but which were only submitted on appeal is their exclusion from the appeal proceedings in accordance with Art. 12(4) RPBA. This however has no influence on the admissibility of the appeal.

1.6 The opponent has further argued that, since the patent proprietor was no longer pursuing the main request submitted at the time of filing the appeal i.e. the patent in the form as granted, the appeal had to be seen as now - retroactively - being inadmissible. This argument is likewise not supported by law. According to Art. 107 and 108 EPC and R. 99 EPC the admissibility of an appeal is determined in the light of the facts at the time the appeal is filed.

1.7 Since the patent proprietor was adversely affected by the decision in respect of its main request, the provisions of Art. 107 EPC are satisfied. Consequently the objection that the appeal of the patent proprietor is inadmissible because the requirements of Art. 107 EPC are not met fails to convince.

2. Main request

2.1 Admissibility

In the statement of grounds of appeal the appellant/patent proprietor pursued as the main request the rejection of the opposition, i.e. maintenance of the patent in the form as granted.

With the second letter of the appeal procedure, in response to the statement of grounds of appeal of the opponent, an amended - restricted - main request corresponding to the claims in the form as upheld by the opposition division was submitted (see section VI,



above).

This request was the subject of concerns in the communication of the Board, in particular with respect to the allowability of the amendments having regard to the presence in the claim of features taken from claims of different categories.

Compared to claim 1 of the auxiliary request underlying the contested decision, the amendments undertaken according to the main request as filed with the letter of 1 December 2015, which merely involved removal of the feature relating to the nature of the catalyst used to obtain the polymer were explicitly stated to be in order to address the above objections of the Board. The dependent claims were - apart from the deletion of claim 2 - identical to the dependent claims of the request underlying the decision under appeal.

The opponent had raised an objection specifically to the definition of the catalyst in claim 1. The patent proprietor had taken position thereon, defending the allowability thereof. However it was only after receipt of the communication, in which the Board set out its preliminary view, that the patent proprietor made the necessary amendments to overcome the objections raised by the opponent.

Although these amendments could have been made at an earlier stage of the proceedings, they are not complex, consisting in the deletion of a feature which, as noted, by the Board in its communication, was not considered to impose any restriction on the product claimed. Therefore that amendment did not result in a change of the matters to be discussed, in particular with respect to the issues of novelty and inventive step.

The appellant/opponent did not argue, let alone show, that the amendment was of such a nature or complexity that it could not be dealt with in the time remaining between the amended request being filed and the oral proceedings.

Consequently, under the present circumstances there is no reason not to admit the new main request to the proceedings.

The main request is admissible.

## 2.2 Art. 123(2) and (3) EPC

Claim 1 of the main request is directed to propylene random copolymers wherein the comonomer is ethylene in an amount of 6 wt.-% or lower and has a TREF elution interval of 50°C or more.

These features are disclosed in claim 18 as originally filed, which is dependent on any of claims 13-17 (see recitation of claims in section II, above). Of these, claim 16 specifies that the copolymer is prepared by copolymerisation of propylene with a comonomer, *inter alia* ethylene and that the copolymer has a TREF elution interval of 50°C or more. Thereby the feature relating to the TREF elution interval in combination with the comonomer being ethylene in an amount of 6 wt.-% or lower is disclosed by claim 18 in its dependency on claim 16.

Operative claim 1 further specifies that the random copolymer has a xylene solubles content of from 5 to 15 wt.-%.

This feature is disclosed in originally filed claim 24 as the "more preferred" embodiment, which claim was dependent on any of claims 13-23, thus also claim 18. Consequently the subject-matter of operative claim 1 corresponds to the subject-matter of one embodiment of

originally filed claim 24 in its dependence on claim 18.

The further claims correspond to originally filed claims 17 (dependent on any of claims 13-16 and on which claim 18 was dependent), 20, 22, 24 and 25 of the application as originally filed.

With respect to operative claim 2, the melting point of 135°C or higher is disclosed at page 9, 4th complete paragraph of the application as originally filed as being preferred in the case of the embodiment in which the TREF interval is 50°C or more, which feature is present in operative claim 1.

Operative claim 1 furthermore corresponds to the copolymers demonstrated in the examples, confirming that this subject-matter was part of the original disclosure. The requirements of Art. 123(2) EPC are thus satisfied.

The opponent did not object that the amendments to the patent as granted extended the scope of protection and the Board has no reason to take a different view of this matter. Therefore the main request is also considered to be in accordance with the requirements of Art. 123(3) EPC.

### 2.3 Art. 83 EPC - admissibility of the ground

The objections raised by the appellant/opponent relate to the certainty or precision of the result of the TREF analysis.

This aspect however affects the question of the feasibility of ascertaining whether a given product falls within the scope of the claims, which is a matter governed by the provisions of Art. 84 EPC.

It has neither been argued nor demonstrated that it

would not be possible to prepare the propylene random copolymer as specified according to claim 1 of the main request, or the film of claim 6 thereof.

Consistently with the above analysis, the decision of the opposition division not to admit the ground of opposition pursuant to Art. 100(b)/83 EPC, although somewhat brief in its reasoning, was based on the finding that the objections raised related to Art. 84 EPC and not to Art. 83 EPC. Consequently the decision of the opposition division relating to the admissibility of the ground pursuant to Art. 100(b) EPC to the proceedings was taken on the basis of a correct appraisal of the underlying facts and according to the correct principles.

As the objections raised by the appellant/opponent were not considered to relate to Art. 100(b) EPC the question of *prima facie* relevance of the ground pursuant to Art. 83 EPC, invoked by the appellant/opponent in its submissions on appeal does not arise.

The ground of opposition pursuant to Art. 100(b)/83 EPC is not admitted to the proceedings.

#### 2.4 Art. 54 EPC

##### 2.4.1 *Meaning of the feature "TREF elution interval" and relation thereto of the xylene soluble fraction*

The appellant/opponent disputed that the TREF interval was unambiguous due to uncertainty as to how the xylene soluble fraction was to be taken into account. According to the opponent this fraction would elute first and it would be impossible to distinguish this from the elution of the crystalline fractions which had deposited on the column, meaning that the TREF elution interval could not be reliably determined.

However as is apparent from e.g. D2, page 868 the purpose and background to TREF analysis is to progressively elute from a column, as the temperature increases, crystalline fractions which have been precipitated onto the column by gradual cooling from solution. Fractions which were soluble in the solvent used, and which consequently did not precipitate would thus not be present in precipitated form on the column and hence would not be eluted. This is confirmed by D13, page 1641 RH column which states that polymer fractions which remain in solution are removed as the first fraction, and are not taken into account in the TREF analysis.

Consequently the very definition of TREF, i.e. Temperature Rising **Elution** Fractionation (emphasis of the Board) excludes that soluble fractions are taken into account since these, due to the fact that they are not deposited on the column, can not be eluted. The ambiguity postulated by the opponent with respect to TREF therefore does not exist.

#### 2.4.2 Novelty over D3

Example 1 of D3 relates to a process whereby a copolymer of propylene and 3.6 wt.-% ethylene is prepared in a two stage reactor cascade, both monomers being present in each stage. A Ziegler-Natta catalyst is employed. The ethylene content is thus within the range of 6 wt.-% or lower required by operative claim 1.

The xylene solubles content of the polymer is 7.9 wt.-% and thus likewise within the claimed range.

A TREF interval for the polymer is not reported.

The appellant/opponent did not advance any evidence relating specifically to the process of D3.

Instead, the appellant/opponent argued that the use of a

Ziegler-Natta catalyst to prepare polymers of propylene and ethylene would inevitably result in a TREF interval as required by the operative claim, i.e. such an elution interval was "inherent" to propylene/ethylene copolymers produced by processes employing Ziegler-Natta catalysts. In support of this argument the opponent referred to D5 and D6.

It is correct that both of these documents show that, for the polymers prepared with Ziegler-Natta catalysts, elution intervals of greater than 50°C are obtained. However, in contrast to D5 and D6, the evidence of the examples of the patent in suit itself, all of which employ a Ziegler-Natta catalyst in a two stage process, is that such a catalyst does not inevitably result in a propylene/ethylene copolymer having an ethylene content of less than 6 wt.-% and an elution interval of greater than 50°C.

Example 1 of the patent employs a gas phase reactor followed by a loop reactor and results in a copolymer having 3.3 wt.-% ethylene and an elution interval of 30.2°C, whereas comparative example 2, employing two loop reactors, results in a copolymer having 3.2 wt.-% ethylene and an elution interval of 40.9°C.

Accordingly the submissions of the appellant/opponent with respect to the inevitability or inherence of the polymers of D3 having an elution interval of at least 50°C as a result of them being prepared with a Ziegler-Natta catalyst is not supported by the evidence.

Consequently there is no evidence - either direct or indirect - that the elution interval of the polymers of D3 would inevitably be within the claimed range of at least 50°C.

The subject-matter of operative claim 1 is thus

distinguished from the disclosure of D3 by the specified elution interval.

2.4.3 Objection of lack of novelty over the published patent derived from the priority document of the patent in suit.

This objection was raised for the first time in the entire proceedings in the letter of 15 December 2015, i.e. after issue of the summons to the oral proceedings.

According to the appellant/opponent the "trigger" for the new argument was the position taken by the Board with respect to Art. 123(2) EPC in its communication.

This however cannot be accepted since the Board's position was based solely on the objections already raised by the opponent. Thus there is no proper justification for raising that objection at this stage of the proceedings.

Furthermore, the arguments submitted by the opponent are based on EP-B-1 270 628 and thus on the patent that was granted on the application from which priority is claimed. Accordingly the argumentation of the opponent is as such not appropriate to assess the disclosure of the document from which priority is claimed. The specific ranges of ethylene content and xylene solubles content as now claimed do not appear to be disclosed in the published priority document, but appear to broadly overlap with the ranges disclosed therein. Also the disclosure of the priority document which is cited as novelty destroying - examples 2 and 4 - is also present in the application as originally filed and in the granted patent.

Furthermore, assuming that the disclosure of EP-B-1 270 628 would correspond to that of the priority

document, the issues raised by the opponent relate to the complex issue of partial priority currently pending before the Enlarged Board of Appeal as referral G 1/15. Accordingly, the amendment to the opponent's case, i.e. the objection that the claimed subject-matter would lack novelty over its own priority, which objection was sought to be made after oral proceedings had been convened, cannot be admitted to the proceedings as this objection raises issues which the Board could not reasonably be expected to deal with without adjournment of the proceedings, contrary to the requirements of Art. 13(3) RPBA.

2.4.4 No other objections pursuant to Art. 54 EPC being pursued, the Board concludes that the requirements of Art. 54 EPC are satisfied.

2.5 Art. 56 EPC

2.5.1 Closest prior art

The patent in suit relates to propylene random copolymers.

According to the patent in suit it is known that important properties of propylene random copolymers such as film transparency or xylene insolubles content are decisively influenced by the comonomer distribution. Conventional processes usually only allow for limited fine-tuning of comonomer distribution whereby the comonomers are concentrated in short polymer chains which negatively affects the properties of the copolymers and increases the content of - undesirable - xylene solubles (paragraphs [0005]-[0007]). According to paragraphs [0008] and [0009] of the patent in suit the problem addressed is to provide propylene random copolymers with properties which can be fine-tuned by tailoring the comonomer distribution and to provide propylene random copolymers with a reduced content of



xylene solubles.

The polymers are intended for uses such as blow moulding, injection moulding, fibres and pipes (paragraph [0014]).

D3, which document according to the decision and the submissions of the opponent represents the closest prior art relates according to claim 1 to high molecular weight polypropylene/ethylene copolymers with an ethylene content of 1 to 10 wt.-% and a broad molecular weight distribution (6-20). The polymer is prepared by a Ziegler-Natta process. The polymer of example 1 has a molecular weight distribution of 9.0. The ethylene content is 3.6 wt.-% and the xylene solubles content is 7.9 wt.-%, both of which lie within the scope of operative claim 1.

The problem addressed by D3 is to provide moulding compositions which can be processed on conventional machinery to produce pipes having toughness and rigidity together with durability (page 2 lines 21-24).

The patent proprietor disputed that D3 represented the closest prior art, but did not propose an alternative.

Under these circumstances, considering the structural similarity of the products claimed and their common use, the Board sees no reason to depart from the position of the decision under appeal with respect to the identity of the closest prior art.

#### 2.5.2 Problem to be solved

Contrary to the submissions of the appellant/patent proprietor, the discrepancies between the examples of the patent in suit are such that it is not possible to ascertain whether any technical effect is associated specifically with the distinguishing feature over D3, i.e. the TREF elution interval.

Under these circumstances the only technical problem that be formulated with respect to D3 is to provide further polypropylene random copolymers in line with the submissions of the appellant/opponent.

#### 2.5.3 Solution

This problem was solved by providing propylene random copolymers of present claim 1 characterised, *inter alia* by a TREF elution interval of 50°C or more.

#### 2.5.4 Obviousness

As noted above, D3 is silent with respect the TREF elution temperature range. Nor does D3 contain any discussion relating to those properties of the copolymer which are quantified or measured by the TREF parameter.

As explained in the patent (paragraph [0043]) the TREF elution interval reflects the internal structure of the polymer, i.e. the distribution of crystalline domains, which in turn is a consequence of the isotacticity or comonomer distribution within the copolymer. This statement is consistent with the teachings *inter alia* of D2, D5 and D6.

Consequently the TREF elution interval is not an arbitrary parameter but reflects a (molecular) structural property of the polymer which is directly linked to the technical problem as set out in the patent in suit, namely the tailoring of the comonomer distribution within the polymer.

D3 is silent with respect to the comonomer distribution within the copolymer and does not contain any discussion of the consequences of modifying this distribution, nor of how this distribution may be controlled.

Furthermore, D3 does not teach how to control the comonomer distribution with the copolymer, while keeping the xylene soluble content within the range now claimed.

Consequently D3 itself does not render the subject-matter claimed obvious.

It has also not been argued that any document would, in combination with D3, render the subject-matter claimed obvious.

2.5.5 The subject-matter of the main request thus meets the requirements of Art. 56 EPC.

## 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 main request (claims 1 to 6) as filed with letter dated 17 December 2015 and after any necessary consequential amendment of the description.

The Registrar:

The Chairman:



B. ter Heijden

F. Rousseau

Decision electronically authenticated