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**Datasheet for the decision  
of 8 October 2013**

**Case Number:** T 0268/11 - 3.3.03

**Application Number:** 96925070.3

**Publication Number:** 783022

**IPC:** C08L23/04, // C08F4/64,  
C08F10/02

**Language of the proceedings:** EN

**Title of invention:**  
ETHYLENIC POLYMER COMPOSITION

**Patent Proprietor:**  
Mitsui Chemicals, Inc.

**Opponents:**  
Basell Polyolefine GmbH  
Borealis Technology OY

**Headword:**

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

**Keyword:**  
Amendments - added subject-matter - main request (yes)  
Sufficiency of disclosure - (yes)  
Inventive step - auxiliary request (yes)  
Late-filed evidence - admitted (no)

**Decisions cited:**

T 1002/92

**Catchword:**



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

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Case Number: T 0268/11 - 3.3.03

**D E C I S I O N  
of Technical Board of Appeal 3.3.03  
of 8 October 2013**

**Appellant:** Mitsui Chemicals, Inc.  
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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 25 November  
2010 revoking European patent No. 783022  
pursuant to Article 101(3) (b) EPC.**

**Composition of the Board:**

**Chairman:** M. C. Gordon

**Members:** O. Dury  
C. Brandt

## Summary of Facts and Submissions

- I. The appeal by the patent proprietor lies against the decision of the opposition division posted 25 November 2010 to revoke European patent N°. EP 0 783 022, based on application N°. 96 925 070.3, corresponding to the international application published as WO 1997/004026 and claiming priority from Japanese application JP 187350/95 (24 July 1995).

The application as filed contained 2 claims which read as follows:

"1. An ethylene type polymer composition comprising:  
(A) an ethylene type polymer in an amount of 20 to 90 % by weight, said ethylene type polymer being an ethylene polymer or a copolymer of ethylene and an  $\alpha$ -olefin of 3 to 20 carbon atoms and having the following properties:  
(A-1) the density ( $d_A$ ) is in the range of 0.96 to 0.98 g/cm<sup>3</sup>, and  
(A-2) the intrinsic viscosity ( $\eta$ ) is in the range of 0.5 to 3.0 dl/g; and

(B) an ethylene type polymer in an amount of 80 to 10 % by weight, said ethylene type polymer being an ethylene polymer or a copolymer of ethylene and an  $\alpha$ -olefin of 3 to 20 carbon atoms and having the following properties:  
(B-1) the density ( $d_B$ ) is in the range of 0.91 to 0.965 g/cm<sup>3</sup>, and  
(B-2) the intrinsic viscosity ( $\eta$ ) is in the range of 1.0 to 10 dl/g,

at least one of said ethylene type polymer (A) and said ethylene type polymer (B) being an ethylene type polymer prepared by the use of a metallocene catalyst,

wherein said ethylene type polymer composition has the following properties:

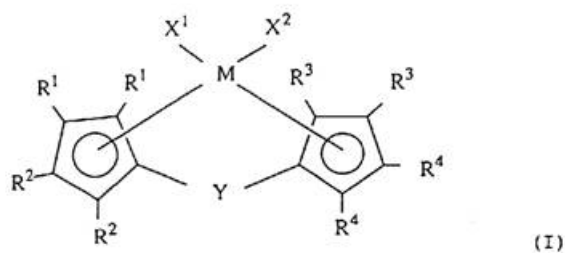
- (1) a ratio ( $d_A/d_B$ ) of the density ( $d_A$ ) of the ethylene type polymer (A) to the density ( $d_B$ ) of the ethylene type polymer (B) is larger than 1;
- (2) the density is in the range of 0.940 to 0.970 g/cm<sup>3</sup>;
- (3) the melt flow rate (MFR, measured at 190°C under a load of 2.16 kg) is in the range of 0.005 to 20 g/10 min;
- (4) the melt flow rate (MFR) and the melt tension (MT) satisfy the following relation

$$\log (MT) \geq -0.4\log(MFR) + 0.7; \text{ and}$$

- (5) the diametrical swell ratio exceeds 1.35."

"2. The ethylene type polymer composition as claimed in claim 1, wherein the ethylene type polymer (A) and/or the ethylene type polymer (B) is prepared by the use of a carrier supported metallocene catalyst comprising:

[I] a transition metal compound represented by the following formula (I):



wherein M is a transition metal atom of Group 4 to Group 6 of the periodic table,  
R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> may be the same as or different from each other, they are each hydrogen atom, a halogen atom, a hydrocarbon group of 1 to 20 carbon atoms, a halogenated hydrocarbon group of 1 to 20 carbon atoms, a silicon-containing group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group or a phosphorus-containing group, or a part of the

adjacent groups of  $R^1$  to  $R^4$  are bonded to each other to form at least one ring together with carbon atoms to which they are bonded,

$X^1$  and  $X^2$  may be the same as or different from each other, and are each hydrogen atom, a halogen atom, a hydrocarbon group of 1 to 20 carbon atoms, a halogenated hydrocarbon group of 1 to 20 carbon atoms, an oxygen-containing group, a sulfur-containing group or a nitrogen-containing group, and

Y is a divalent hydrocarbon group, a divalent silicon-containing group or a divalent germanium-containing group;

[II] a compound which is capable of activating the transition metal compound [I] and is at least one compound selected from:

(II-1) an organoaluminum compound,

(II-2) an aluminoxane, and

(II-3) a compound which reacts with the transition metal compound [I] to form an ion pair; and

[III] a fine particle carrier."

II. The patent in suit contained 7 claims which read as follows (amendments as compared to the claims of the application as filed are shown in **bold**, deletions in ~~strikethrough~~).

"1. An ethylene ~~type~~ polymer composition comprising:

(A) an ethylene ~~type~~ polymer in an amount of 20 to 90% by weight, said ethylene ~~type~~ polymer being an ethylene polymer or a copolymer of ethylene and an  $\alpha$ -olefin of 3 to 20 carbon atoms and having the following properties:

(A-1) the density ( $d_A$ ) is in the range of 0.96 to 0.98 g/cm<sup>3</sup>, and

(A-2) the intrinsic viscosity **in decalin at 135°C in decalin at 135°C** [*sic*] ( $\eta$ ) is in the range of 0.5 to 3.0 dl/g;

and

(B) an ethylene ~~type~~ polymer in an amount of 80 to 10 % by weight, said ethylene ~~type~~ polymer being an ethylene polymer or a copolymer of ethylene and an  $\alpha$ -olefin of 3 to 20 carbon atoms and having the following properties:

(B-1) the density ( $d_B$ ) is in the range of 0.91 to 0.965 g/cm<sup>3</sup>, and

(B-2) the intrinsic viscosity **in decalin at 135°C** ( $\eta$ ) is in the range of **3.0 ~~1.0~~** to 10 dl/g,

at least one of said ethylene ~~type~~ polymer (A) and said ethylene ~~type~~ polymer (B) being an ethylene ~~type~~ polymer prepared by the use of a metallocene catalyst,

wherein said ethylene ~~type~~ polymer composition has the following properties:

(1) a ratio ( $d_A/d_B$ ) of the density ( $d_A$ ) of the ethylene type polymer (A) to the density ( $d_B$ ) of the ethylene type polymer (B) is larger than 1;

(2) the density is in the range of 0.940 to 0.970 g/cm<sup>3</sup>;

(3) the melt flow rate (MFR, measured at 190°C under a load of 2.16 kg) is in the range of 0.005 to 20 g/10 min;

(4) the melt flow rate (MFR) and the melt tension (MT) **at 190°C** satisfy the following relation

$$\log (MT) \geq -0.4\log(MFR) + 0.7; \text{ and}$$

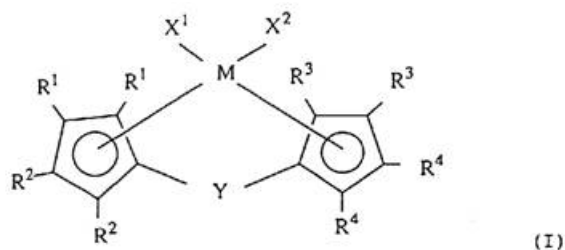
(5) the diametrical swell ratio, **(ratio of strand diameter to tubular nozzle diameter at a piston speed of 50 mm/min as measured by capillograph-1 $\beta$  equipped with a tubular nozzle and a barrel at 200°C** exceeds 1.35."

"2. The ethylene ~~type~~ polymer composition as claimed in claim 1, wherein the ethylene ~~type~~ polymer (A) and/or the ethylene type polymer (B) is ~~prepared~~ **obtainable** by



the use of a carrier supported metallocene catalyst comprising:

[I] a transition metal compound represented by the following formula (I):



wherein M is a transition metal atom of Group 4 to Group 6 of the periodic table,  
 $R^1$ ,  $R^2$ ,  $R^3$  and  $R^4$  may be the same as or different from each other, they are each hydrogen atom, a halogen atom, a hydrocarbon group of 1 to 20 carbon atoms, a halogenated hydrocarbon group of 1 to 20 carbon atoms, a silicon-containing group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group or a phosphorus-containing group, or a part of the adjacent groups of  $R^1$  to  $R^4$  are bonded to each other to form at least one ring together with carbon atoms to which they are bonded,  
 $X^1$  and  $X^2$  may be the same as or different from each other, and are each hydrogen atom, a halogen atom, a hydrocarbon group of 1 to 20 carbon atoms, a halogenated hydrocarbon group of 1 to 20 carbon atoms, an oxygen-containing group, a sulfur-containing group or a nitrogen-containing group, and  
 Y is a divalent hydrocarbon group, a divalent silicon-containing group or a divalent germanium-containing group;

[II] a compound which is capable of activating the transition metal compound [I] and is at least one compound selected from:

- (II-1) an organoaluminum compound,
- (II-2) an aluminoxane, and

(II-3) a compound which reacts with the transition metal compound [I] to form an ion pair; and [III] a fine particle carrier."

"3. An ethylene polymer composition according to claim 2 wherein the metallocene catalyst is a prepolymerized catalyst".

"4. A process for producing the ethylene polymer composition according to claim 2 or 3 which process comprises producing the metallocene catalyst by a process comprising contacting components [I], [II] and [III] so as to perform reaction and optionally forming a prepolymerized catalyst by prepolymerizing an olefin in the presence of the reacted components."

"5. A process for producing the ethylene polymer composition according to any one of claims 1 to 3 which process comprises producing A and/or B by polymerizing ethylene or ethylene and an  $\alpha$ -olefin of 3 to 20 carbon atoms using the metallocene catalyst in a concentration of  $10^{-8}$  to  $10^{-3}$  g.atom (transition metal) per litre."

"6. A process of blow moulding a polymer composition according to any one of claims 1 to 3."

"7. A moulded article fashioned from a polymer composition according to any one of claims 1 to 3."

III. Notices of opposition against the patent were filed on 21 June 2005 (opponents 01 and 02), in which the revocation of the patent in its entirety was requested on the grounds of Art. 100 (a) EPC (opponents 1 and 2: both lack of novelty as well as lack of an inventive step), Art. 100(b) EPC (opponents 1 and 2) and Art. 100 (c) EPC (opponent 2).

IV. In the decision under appeal reference was made, *inter alia*, to the following documents:

E5: EP-A-0 339 571

E13: WO 96/14358

E15: US-A-4 390 666

E27: Declaration before the USPTO of Mr. Takahashi  
dated 28 October 1999

V. The decision of the opposition division was based on a main request (rejection of the opposition, i.e. maintenance of the patent as granted) and two auxiliary requests (both filed on 10 September 2010), auxiliary request 1 consisting of claims 1-4 and 6-7 of the main request, i.e. claim 5 as granted having been deleted. According to the decision:

- a) The priority claimed by the patent in suit was not valid.
- b) The requirements of Art. 83 EPC were met.
- c) The main request was not allowable because granted claim 5 did not satisfy the requirements of Art. 100(c) EPC.
- d) The subject-matter of claims 1-6 of auxiliary request 1 was novel because none of the documents cited disclosed the combination of parameters specified therein.
- e) Regarding inventive step, E13 was identified as the closest prior art and the argument of the opponent that E15 would be a better starting point was rejected. The problem to be solved was to provide compositions having higher melt tension

than the compositions of E13, the solution residing in an increase of the intrinsic viscosity of component (B). E27 showed that that problem was indeed solved. However, E5 (Table 1: examples 1-4) and E15 (Table 1: comparative examples 1-2; column 7, line 27), which were both related to compositions having improved blow moulding characteristics, melt tension and die swell, both taught that higher molecular weight resulted in a higher intrinsic viscosity, lower melt flow rate and increased melt tension. Therefore the subject-matter claimed in auxiliary request 1 was obvious in the light of E13 in combination with either E5 or E15.

- f) Auxiliary request 2, which is not relevant for the present decision, was also held not to satisfy the requirements of Art. 56 EPC in the light of the combination of E13 with E5.

VI. On 25 January 2011, the patent proprietor (appellant) lodged an appeal against the above decision. The prescribed fee was paid on the same day. The statement of grounds of appeal was filed on 5 April 2011. With letter of 19 August 2013 the appellant submitted further arguments and requested that the decision of the opposition division be set aside and the patent in suit be maintained as granted (main request) or, alternatively, in amended form according to any of auxiliary requests 1-4 filed therewith and replacing the auxiliary requests filed with the statement of grounds of appeal.

Auxiliary request 1 was identical to auxiliary request 1 of the decision under appeal.

Auxiliary requests 2-4 are not relevant for the present decision.

VII. Respondent 01 (opponent 01) did not make any submissions with respect to the appeal and with letter dated 14 August 2013 announced that they would not attend the oral proceedings.

VIII. With letter of 18 October 2011 respondent 02 (opponent 02) replied to the statement of grounds of appeal and requested the dismissal of the appeal. It was furthermore stated that evidence was still being collected with respect to the objection pursuant to Art. 83 EPC. Further arguments were submitted with letters of 16 August 2013 and 6 September 2013, the latter citing the following document:

E28: US-A-5 272 236

IX. In a communication accompanying the summons to oral proceedings issued on 22 May 2013 the Board set out its preliminary view of the case.

X. During the oral proceedings held on 8 October 2013 in the absence of respondent 01, as announced, respondent 02 agreed that E27 had been introduced into the proceedings by the opposition division and withdrew its request made in writing that E27 should not be admitted into the proceedings.

XI. The appellant's arguments relevant for the present decision may be summarised as follows:

*Main request*

Amendments

- a) The subject-matter of granted claim 5 was directly and unambiguously derivable from the passages of the English language translation of the application as filed on page 30, lines 4-7 and 18-23 read in combination with page 9, lines 4-7 and page 10, lines 1-4. Therefore, granted claim 5 did not contravene the requirements of Art. 123(2) EPC.

*Auxiliary request 1*

Sufficiency of disclosure

- b) The sole objection maintained in appeal by the respondent under this ground was related to an alleged lack of sufficiency regarding the determination method of the "diametrical swell ratio" specified in claim 1. Detailed information regarding the apparatus to be used and measurement conditions were indicated in paragraphs [0113] to [0115] of the patent in suit. The argument of the respondent that the apparatus Capillograph-1B was no longer available was not supported by any evidence. The respondent had further failed to demonstrate in which respect the apparatus allegedly now available would differ from the Capillograph-1B specified in the patent in suit. The evidence announced in the letter of respondent 02 dated 18 October 2011 had never been

submitted. Therefore, the requirements of Art. 83 EPC were met.

Inventive step starting from E13 as closest prior art

- c) The closest prior art was represented by the fourth example listed in Table IB of E13, that disclosed a polyethylene composition prepared by mixing the following polyethylene fractions: 81 wt.% HDPE 2 and 19 wt.% SLEP 2.

The problem to be solved was to provide polyethylene compositions having improved mouldability, as indicated in paragraphs [0003] and [0112] of the patent in suit.

The solution resided in a composition according to claim 1 that differed from the closest prior art in the following points:

- i) the intrinsic viscosities of the high density and low density ethylene polymers (A-2) and (B-2) were different. In that respect, although E13 did not provide any information regarding intrinsic viscosity, it was well established that melt index was inversely proportional to the molecular weight of the polymer (E13: page 3, lines 31-33) and that molecular weight and intrinsic viscosity were interrelated (E15: col. 7, lines 34-41). Since the polyethylene fractions used in the composition of the closest prior art had identical melt indices, they necessarily had to have the same intrinsic viscosity and the same molecular weight.

- ii) the claim required that at least one of ethylene polymers A and B was prepared using a metallocene catalyst. In that regard, there was no evidence on file that the polyethylene SLEP 2 of E13 was prepared using a metallocene catalyst. Furthermore the information given on page 11, line 29 to page 12, line 2 of E13, including the reference to E28, did not allow it to be concluded that the commercial product SLEP 2 was prepared using a metallocene catalyst.
  
- iii) the compositions now being claimed had to satisfy features (4) and (5) according to granted claim 1. E27 demonstrated that the composition according to the closest prior art failed to satisfy said feature (4). There was no reason to doubt the validity of the information in E27, which was a declaration from an experienced employee of the appellant filed before the USPTO.
  
- d) Examples 1-4 of the patent in suit showed that compositions according to operative claim 1 effectively solved the above problem.

During the oral proceedings before the Board, the appellant declared that he would not comment on comparative example 1 of the patent in suit.

- e) E13 contained no motivation to modify the subject-matter of the closest prior art so as to arrive at the subject-matter of operative claim 1.

E13 further taught on page 19, line 35 that low



molecular weight polyethylene components resulted in inferior properties. Hence, should the skilled person modify the polyethylene composition of the closest prior art, he would not have decreased the molecular weight of the polyethylene component having the higher density. E13 taught away from the present invention.

E5 was directed to polyethylene having a broad polydispersity prepared using specific metallocene catalysts. In contrast thereto, E13 taught not to use polyethylene components having such high polydispersities (page 9, lines 25-38).

E15 disclosed polyethylene compositions prepared by lightly crosslinking two polyethylene fractions. However, one of the essential requirements was that the ratio of molecular weights of those fractions had to be from 2 to 100 (see e.g. claim 1 of E15). That condition was not met by the polyethylene components of the closest prior art. Besides, none of the examples of E15 had a melt tension as specified in operative claim 1.

Considering the fundamental differences between the subject-matter disclosed in either E5 or E15 and that of the closest prior art E13, the skilled person would not have combined the teaching of those documents. In addition, the skilled person would not have had any motivation to do so in order to solve the problem of improving the mouldability of the polyethylene compositions of the closest prior art.

- f) Therefore, the subject-matter claimed was inventive over E13 alone or in combination with either E5 or E13.

Inventive step starting from E15 as closest prior art

- g) E15 was not a more promising starting point than E13 since it dealt with the crosslinking of two polyethylene components, not with the blending thereof.
- h) Nevertheless, should one start from example 1 of E15 as the closest prior art, the problem to be solved was the same as when starting from E13 as the closest prior art and the examples of the patent in suit showed that that problem was effectively solved.
- i) The subject-matter claimed differed from the closest prior art E15 in that at least one polyethylene component(s) was prepared using a metallocene catalyst and in features (4) and (5) according to operative claim 1. In that respect, the respondent acknowledged in its letter dated 18 October 2011 that the composition of the examples of E15 did not satisfy these features.
- j) E15 contained no hint how to solve the technical problem defined above.
- k) The combination of E15 and E5 was not possible because E15 dealt with compositions having two polyethylene components whereas E5 only disclosed the preparation of a single polyethylene. Furthermore, there was no evidence on file that E5 taught to prepare polyethylene components

according to either operative claim 1 and/or E15. Therefore, it had not been shown that the process of E5 could be used to prepare a polyethylene component according to example 1 of E15. Even if E15 and E5 were to be combined, it had also not been shown that the combination led to the subject-matter claimed.

- l) There was also no evidence on file that the combination of E15 and E13 led to compositions as defined in operative claim 1, in particular to a composition satisfying features (4) and (5).
- m) Therefore, an inventive step was present over E15 alone or in combination with either E5 or E13.

XII. The respondent's arguments relevant for the present decision may be summarised as follows:

*Main request*

Amendments

- a) The concentration range of transition metal specified on page 30, lines 18ff of the application as filed referred to the "solid catalyst" and "prepolymerised catalyst" but not to metallocene catalysts in general. The concentration range disclosed in granted claim 1 was not directly and unambiguously disclosed independently from the specific catalysts. The passage on page 9, line 4 of the application did not alter that conclusion. Therefore, granted claim 5 did not meet the requirements of Art 100(c) EPC.

*Auxiliary request 1*

Sufficiency of disclosure

- b) The apparatus Capillograph-1B specified in paragraph [0114] of the patent in suit was no longer available on the market. As could be seen from the Toyoseiki website, only an apparatus named Capirograph 1D was currently available which differed significantly from that specified in the patent.
- c) Due to the non-availability of the Capillograph-1B apparatus, the skilled person was not in a position to determine the parameter "diametrical swell ratio" as defined in claim 1. The skilled person was confronted with a problem that could not be overcome and that was inherent to the wording of claim 1 chosen by the appellant. That situation amounted to an undue burden.

Inventive step starting from E13 as closest prior art

- d) The closest prior art was represented by the fourth example listed in Table IB of E13.
- e) The problem effectively solved was to provide further, alternative polyethylene compositions to those according to the closest prior art. The problem of providing polyethylene compositions having improved mouldability relied upon by the appellant was not credibly solved for the following reasons:
  - i) there was no fair comparison on file between compositions as claimed and that of the

closest prior art;

- ii) Comparative example 1 of the patent in suit disclosed a polyethylene composition having *inter alia* a density of  $0.956 \text{ g/cm}^3$ , which corresponded, when rounded up to two significant digits, to a density of  $0.96\text{-}0.98 \text{ g/cm}^3$  according to feature (A-1) of operative claim 1. The composition prepared in comparative example 1 was thus according to operative claim 1 but showed insufficient mechanical properties (Table 1 of the patent in suit). In particular the composition had a stress-crack resistance (ESCR) three times lower than that of example 2 (which had a comparable melt flow rate);
  
- iii) Experiment 2 of E27 had been submitted by the appellant as a repetition of the closest prior art. However, since the only parameters disclosed in common in E27 and E13 were the density and the melt flow rate, it could not be ascertained that Experiment 2 of E27 was a fair reproduction of the closest prior art. Although the respondent had no evidence in that respect, it was considered astonishing that the appellant had been able to reproduce the teaching of the closest prior art to such a high degree of accuracy (e.g. the density value obtained in E27 agreeing to a precision of the fourth decimal place with the value reported in E13) on the basis of the very limited information provided in E13 and considering the usual variations to be

expected when reproducing experiments in the field of polymer chemistry;

- iv) Feature (4) of operative claim 1 was a mere desiderata or a "result to be achieved". The claimed improvement in mouldability of the claimed compositions over that of the closest prior art was not supported by the facts. The appellant merely relied on paragraph [0112] of the patent in suit. There was no evidence demonstrating that the fulfillment of feature (4) specified in claim 1 was related to any effect, in particular improved mouldability.
  
- f) The subject-matter claimed differed from the closest prior art in that the intrinsic viscosity of the low density ethylene polymers (B-2) was lower (rejoinder to the statement of grounds of appeal: section 3.11).

It could not be ascertained whether or not the composition of the closest prior art satisfied the requirements of features (4) and (5) of operative claim 1. The appellant had not provided sufficient evidence in that respect. Hence, those features could not be used to distinguish the subject-matter claimed from the closest prior art.

Regarding the requirement of operative claim 1 that at least one of ethylene polymers A and B was prepared using a metallocene catalyst, E13 taught on page 11, line 29 to page 12, line 2 that substantially linear ethylene polymers (SLEP) were prepared according to E28, i.e. with a metallocene catalyst. The fact that at least one of the

polyethylene components of the compositions claimed had to be prepared using a metallocene catalyst did not constitute a distinguishing feature over the closest prior art.

In that respect it was requested during the oral proceedings before the Board to admit E28 into the proceedings because of its *prima facie* relevance.

- g) Considering that E5 and E15 both aimed, as did the patent in suit, at providing polyethylene compositions having good blow moulding properties, melt tension and die swell, they addressed the same problem as E13. Hence, the skilled person would have contemplated the combination of those prior art documents.
- h) Since polydispersity of the polyethylene components was not a feature of the operative claims, the teachings of E13 and E5 in that respect could not have formed an obstacle to the combination of those documents.
- i) There was no evidence that the requirement of operative claim 1 according to which at least one of the polyethylene fractions A and B has to be prepared using a metallocene catalyst was related to any technical effect.

E5 (Table 3) and E15 (Table 1) both showed that increasing the intrinsic viscosity of a polyethylene composition led to improved melt tension i.e. improved mouldability. It was therefore obvious for the skilled person starting from the identified closest prior art to provide further, alternative polyethylene compositions by merely increasing the intrinsic

viscosity of the low density polyethylene fraction. It would have been also obvious to do so in order to improve the mouldability of the polyethylene compositions.

Inventive step starting from E15 as closest prior art

- j) E15 represented an alternative promising starting point for the assessment of the inventive step for the following reasons:
- it addressed the same problem as the patent in suit (E15: col. 2, lines 38-47);
  - the polyethylene composition prepared in Example 1 of E15 was very similar to the subject-matter of operative claim 1. In that respect, the molecular weights of 380 000 and 21 000 disclosed for both polyethylene components used in example 1 corresponded, according to the equation provided in col. 7, lines 34-41 of E15, to intrinsic viscosities of 3.7 and 0.5 dl/g, respectively, which were in the ranges (B-2) and (A-2) defined in operative claim 1, respectively.
- k) The problem to be solved was to provide further polyethylene compositions as alternatives to those of example 1 of E15.
- l) The subject-matter claimed differed from the closest prior art E15 in that at least one of the polyethylene component(s) was prepared using a metallocene catalyst and in that features (4) and (5) according to operative claim 1 were satisfied.
- m) It was obvious to prepare one of the polyethylene components used in example 1 of E15 using a



metallocene catalyst according to E5. Example 14 of E5 disclosed in particular a polyethylene having a low density. The other examples of E5 showed that the molecular weight of the polyethylene prepared could be varied using usual working conditions e.g. the hydrogen flow. The examples of E5 disclosed a broad range of melt index (from 0.58 to 2.3 g/10 min). It was further known that density depended on the amount of comonomer fed.

Polyethylene prepared using a metallocene catalyst were also known from E13.

No effect, in particular in respect of mouldability, was shown in relation to features (4) and (5).

Therefore, the subject-matter claimed was obvious in the light of E15 in combination with either E5 or E13.

n) The subject-matter claimed was, thus, not inventive.

XIII. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained as granted or, in the alternative, be maintained in amended form according to any of auxiliary requests 1 to 4 filed with letter of 19 August 2013.

Respondent 02 (opponent 02) requested that the appeal be dismissed.

XIV. The Board announced its decision at the end of the oral proceedings.

### **Reasons for the Decision**

1. The appeal is admissible.

*Main request (patent as granted)*

2. Amendments

2.1 Granted claim 5 is *inter alia* directed to a process for producing an ethylene composition according to granted claim 1 whereby ethylene polymers A and/or B are prepared using "the metallocene catalyst in a concentration of  $10^{-8}$  to  $10^{-3}$  g.atom (transition metal) per litre". In that respect, granted claim 1 further requires that at least one of ethylene polymers A and B is prepared using a metallocene catalyst.

2.1.1 The English language translation of the application as filed contained a set of two claims directed to ethylene compositions on which granted claims 1-2 were based. Granted claim 5 had no counterpart in the original set of claims.

The copolymerisation is discussed in the application as originally filed (English language version) commencing at page 27 line 5. In the section up to page 30 line 3 the preparation of the prepolymerised catalyst is dealt with. Commencing at page 30 line 4 the polymerisation is discussed. At page 30 lines 18-23 the concentration of the catalysts to be employed in the polymerisation is disclosed. Neither of these passages makes any

distinction between the preparation of polymer A and polymer B and there is no restriction as to the nature of the catalysts, i.e. neither of the indicated passages relates explicitly to metallocene catalysts. There is in particular no indication in the cited passages of page 30 that the concentration range specified in granted claim 5 may apply to the amount of specifically metallocene catalyst used to prepare either exclusively polymer A or exclusively polymer B.

- 2.1.2 The passages on page 9, lines 4-7 and page 10, lines 1-4 of the application as filed relied upon by the appellant specify that each of ethylene polymers A and B is preferably prepared using a metallocene catalyst, respectively. Said passages are, however, disclosed in a different part of the description than the passage related to the amount of catalyst identified above (page 30, lines 18-23) and there is no indication - explicit or implicit - in the application as filed of the combination of these passages.
- 2.1.3 For these reasons, the requirement of granted claim 5 that either ethylene polymer A alone or ethylene polymer B alone or both ethylene polymers A and B are prepared using a metallocene catalyst in a concentration of  $10^{-8}$  to  $10^{-3}$  g.atom (transition metal) per litre is not directly and unambiguously derivable from the application as filed.
- 2.2 Therefore granted claim 5 does not meet the requirements of Art. 100(c) EPC and the main request is refused.

*Auxiliary request 1*

3. Sufficiency of disclosure

3.1 In order to meet the requirements of Art. 83 EPC, an invention has to be disclosed in a manner sufficiently clear and complete for it to be carried out by the skilled person, without undue burden, on the basis of the information provided in the patent specification. In the present case this means that it must be possible to prepare an ethylene polymer composition according to claims 1-3 and to carry out a process according to claims 4-6.

3.2 The sole objection raised by the respondent is related to the method of determination of the parameter "diametrical swell ratio" specified in claim 1, feature (5).

In that respect, the type of apparatus and a number of the experimental conditions to be used are indicated in operative claim 1, feature (5) as well as, in more detail, in paragraphs [0113] to [0115] of the patent in suit. There is no evidence on file that the "diametrical swell ratio" specified in operative claim 1 could not be measured on the basis of that information. In particular, although the respondent submitted that the apparatus Capillograph-1B specified in paragraph [0114] of the patent in suit could no longer be purchased, it was never disputed that said apparatus was available at the filing date (respectively priority date) of the application as filed.

In addition, the following arguments put forward by the respondent are not supported by any evidence:

- the impossibility of purchasing at the present an apparatus Capillograph-1B;
- the "substantial" modifications between Capillograph-1B and Capirograph 1D;
- the evidence announced with letter of 18 October 2011.

The objection relating to the method of determination of the diametrical swell ratio is thus supported by no evidence and must be dismissed.

3.3 No further objections in respect of Art. 83 EPC having been raised, the Board has to conclude that the requirements of Art. 83 EPC are met.

#### 4. Cited documents

4.1 The finding of the opposition division that the priority claimed for the patent in suit was not valid was not contested, either during the opposition or the appeal proceedings. The Board also sees no reason to deviate from that view. E13, which was published between the priority and the filing date of the European patent application on which the patent in suit is based, is, thus, comprised in the state of the art pursuant to Art. 54(2) EPC.

4.2 It was clarified during the oral proceedings before the Board that an apparent inconsistency between the minutes of the oral proceedings and the contested decision regarding whether or not E27 had been admitted to the proceedings was due to a different numbering of that document used by the opposition division in the minutes and the reasons for the decision whereby the document identified as "E27" in the minutes corresponded to the document identified as "E27'" of

the written reasons for the contested decision.

Since the respondent agreed that E27 had been admitted into the proceedings and withdrew its request not to admit E27 to the proceedings previously made in writing, that document, which was also relied upon by the respondent in its rejoinder to the statement of grounds of appeal, is in the appeal proceedings.

- 4.3 E28 was first cited by the appellant in its last submission dated 6 September 2013 in order to demonstrate that constrained geometry (i.e. metallocene) catalysts lead to branched polyethylene. During the oral proceedings before the Board, the appellant further requested to admit E28 into the proceedings in order to support its argument that polyethylene SLEP 2 specified in E13 was prepared using a metallocene catalyst.

The admissibility to the proceedings of E28, which was filed late, is subject to the Board's discretion (Art 12(4) RPBA). In proceedings before the EPO, late filed documents should only be admitted into the proceedings if such material is *prima facie* highly relevant in the sense that it can reasonably be expected to change the eventual result and is thus highly likely to prejudice maintenance of the European patent (see e.g. paragraph 3.4 of the Reasons of T 1002/92, OJ 1995, 605).

Product SLEP 2 of E13 is the commercial product AFFINITY FM 1570 (E13: page 15, lines 11-14). Considering that E28 does not specifically disclose said commercial product it does not assist in establishing whether SLEP 2 of E13 was prepared using a metallocene catalyst.

Furthermore, as emerges from the assessment of inventive step below, the issue of whether constrained geometry (i.e. metallocene) catalysts result in branched polyethylene is not relevant for the current decision.

Consequently, E28 is not *prima facie* highly relevant for the present decision and is not admitted to the proceedings (Art. 12(4) RPBA).

- 4.4 Under such circumstances, documents E5, E13, E15 and E27 may be relied upon for the assessment of the inventive step whereby in alternative approaches either E13 or E15 may be considered as representing the closest prior art, both documents, as will be explained below, addressing the same problem as the patent in suit but proposing different solutions thereto.

In this connection the Board observes, as will be explained in detail below, that the contents of the prior art documents E13 and E15 are quite different from each other so that the assessment of inventive step might significantly differ when starting from each of these. It is also not possible to conclude that either of document E13 or E15 is more relevant than the other one.

5. Inventive step: E13 as the closest prior art

- 5.1 Closest prior art

- 5.1.1 The patent in suit relates to ethylene polymer compositions for moulding applications which compositions have good mechanical strength such as impact strength and stress crack resistance, as well as

good rigidity and moulding properties (see paragraphs [0001], [0003], [0007], [0008], [0120], [0121], [0167] and Table 1 of the patent in suit).

- 5.1.2 E13 deals with ethylene polymer compositions for moulding and having good impact strength and rigidity (page 2, lines 20-22). The compositions of E13 can be employed to manufacture many different types of moulded articles (mono- and multilayered) such as films, sheets and solid or hollow mouldings by various suitable known moulding techniques, including various forms of blow-moulding, injection moulding, compression moulding, extrusion and thermoforming (page 13, lines 18-25), including hollow articles having good strength (page 13, line 31). Such compositions are also shown to exhibit good impact strength, stress crack resistance and swell ratio (examples: the meaning of the properties % swell, ESCR and Izod impact reported therein is indicated on page 14, lines 3-24 of E13).

E13 discloses ethylene polymer compositions comprising a high density ethylene polymer A and a low density ethylene polymer B (E13: claims 1-6). It was not disputed by the parties that the ranges of density and melt index (i.e. melt flow rate) of E13 overlapped with those of operative claim 1 (see the correspondence between melt flow rate and intrinsic viscosity specified in paragraphs [0021] and [0028] of the patent in suit). However, the claims of E13 fail to disclose the specific combination of parameters (A1), (A2), (B1), (B2) according to operative claim 1. Furthermore, the claims of E13 neither disclose a metallocene catalyst nor features (4) and (5) of operative claim 1.

Table IB (page 18 of E13) discloses *inter alia* an example wherein a polyethylene composition is prepared



by mixing 81 wt.% HDPE 2 and 19 wt.% SLEP 2, which are, respectively, a high density polyethylene prepared using a Ziegler catalyst (density: 0.9656 g/cm<sup>3</sup>; melt index 1.0 g/10 min; polydispersity: 6.7: see page 14, lines 30-32 of E13) and a commercial substantially linear ethylene/1-octene copolymer (density 0.915 g/cm<sup>3</sup>; melt index: 1.0 g/10 min; polydispersity: 2.0: see page 15, lines 11-14 of E13). Said composition exhibits a density of 0.9549 g/cm<sup>3</sup> and a melt index of 0.97 g/10 min (Table IB).

Hence, E13 and in particular the composition of Table IB prepared from 81 wt.% HDPE 2 and 19 wt.% SLEP 2 represents a suitable starting point for the assessment of inventive step.

## 5.2 Problem to be solved

The problem to be solved as compared to the closest prior art may be formulated as the provision of ethylene compositions having improved mouldability. That problem is in particular derivable from paragraphs [0003] and [0112] of the patent in suit.

## 5.3 Solution

The solution to the above problem resides in compositions according to operative claim 1, which differ from the composition of the closest prior art in that:

- (a) the low and high density ethylene polymer fractions A and B must have intrinsic viscosities in the specific ranges disclosed in features (A-2) and (B-2) of operative claim 1.

The composition of the closest prior art is made from two polyethylenes having the same melt index i.e. similar molecular weight. According to the respondent, the intrinsic viscosity of the low density polyethylene fraction of the prior art composition is lower than the intrinsic viscosity specified in feature (B-2);

- (b) at least one of those polyethylene fractions is prepared using a metallocene catalyst.

In that respect, there is no evidence on file that polymer SLEP 2 used in the composition of the closest prior art was prepared using a metallocene catalyst although the relevance of that issue had been indicated to the parties in the communication of the Board. The passage on page 11, line 29 to page 12, line 2 of E13 teaches that substantially linear ethylene polymers (SLEP) are disclosed in E28, which indeed discloses the preparation thereof using metallocene catalysts. However, neither said passage of E13 nor E28 discloses unambiguously that the commercial product AFFINITY FM 1570 corresponding to the polyethylene SLEP 2 used to prepare the composition of the closest prior art was made using a metallocene catalyst. Further taking into account that the other polyethylene component (HDPE 2) was prepared using a Ziegler catalyst (i.e. not a metallocene catalyst), it cannot be concluded that the composition of the closest prior art fulfils the requirement of operative claim 1 according to which at least one of polyethylene A or B is prepared using a metallocene catalyst.

- (c) the ethylene composition has to satisfy features (4) and (5) according to operative claim 1.

Regarding feature (4), E27 shows that the above noted composition of the closest prior art does not fulfill that requirement. Although the Board concurs with the respondent that it is surprising that the appellant had been able to reproduce to such a high degree of precision a composition according to the closest prior art in particular in view of the somewhat limited information provided by E13, there is, in the absence of any evidence to the contrary (as acknowledged by the respondent during the oral proceedings before the Board), no reason to doubt the evidence of E27.

Regarding feature (5), the methods of determination of the swell ratio used in E27 and in the patent in suit are not identical. Hence, the values disclosed in Table IB of E13 cannot be directly compared to that specified in feature (5) of operative claim 1.

#### 5.4 Success of the solution

5.4.1 Compositions according to operative claim 1 and having excellent mouldability, mechanical strength, rigidity and ESCR were prepared in Examples 1-4 of the patent in suit (Table 1; paragraph [0167]). It was not disputed by the parties that those compositions would exhibit satisfactory properties, in particular in terms of mouldability.

5.4.2 The ethylene polymer A used to prepare the composition of Comparative example 1 of the patent in suit has a density of  $0.956 \text{ g/cm}^3$  and an intrinsic viscosity of

1.8 dl/g. Since operative claim 1 requires that the ethylene polymer fraction having such an intrinsic viscosity should have a density of 0.96 to 0.98 g/cm<sup>3</sup>, Comparative example 1 of the patent in suit is not according to claim 1. In that respect, it is held that the patentee, by disclosing a density to the precision of three significant digits demonstrated that it was technically in a position to measure the density to such a degree of precision and furthermore that it was technically possible reliably to distinguish, on the basis of their densities the polyethylene component A used in Comparative example 1 from a polyethylene with a density of 0.96 g/cm<sup>3</sup> as required by operative claim 1. That conclusion is further supported by the fact that Comparative example 1 is indicated both in the patent in suit and in the application as filed (page 46, line 18; Table 1 page 47) as a *comparative* example, i.e. not illustrative of the invention and that the composition of the comparative example otherwise satisfies all the requirements of operative claim 1. In that respect, the argumentation of the respondent that the density of comparative example 1 should be rounded up to two digits can not be followed because, in the Board's view, the relevant criterion to apply here is whether or not the skilled person was, at the filing date of the application, in a position technically to distinguish the density of the example from that specified in operative claim 1. The - undisputed - evidence of the patent in suit is that such a distinction was technically feasible.

Furthermore, the properties reported for the composition of Comparative example 1 of the patent in suit are within the spread of those exhibited by the compositions of examples 1-4 of the patent in suit, all illustrative of the subject-matter claimed and

exhibiting satisfactory properties, in particular in terms of mouldability (paragraph [0167] of the patent in suit).

Hence, it can neither be concluded that the composition of Comparative example 1 is according to operative claim 1 nor that it, nevertheless, does not exhibit satisfactory mouldability properties.

- 5.4.3 Whereas the composition of the closest prior art does not satisfy feature (4) according to operative claim 1 (E27: top of page 8), the compositions of examples 1-4, all illustrative of the subject-matter claimed, do (Table 1 of the patent in suit). That result shows that the compositions claimed exhibit, for a given melt flow rate, improved melt tension as compared to the closest prior art. Simultaneously, the compositions claimed exhibit a satisfactory swell ratio according to feature (5).
- 5.4.4 Considering the different methods of determination used in E13 and in the patent in suit for the parameters used to characterise the compositions and in the absence of a fair comparison between examples 1-4 of the patent in suit and the closest prior art it is not possible to compare fairly the other characteristics of these compositions e.g. swell ratio (operative claim 1; page 14, lines 10-17 of E13), Izod (paragraph [0124] of the patent in suit; page 14, lines 4-6 of E13).
- 5.4.5 As explained in paragraphs [0003] and [0008] of the patent in suit, compositions having simultaneously good melt tension and diametrical/die swell ratio have the advantage of being usable in a variety of different moulding processes. Table 1 of the patent in suit together with E27 show that the compositions claimed

have, in comparison to the closest prior art, improved melt tension while maintaining a good swell ratio, i.e. have "improved mouldability".

5.4.6 Therefore, the technical problem identified in section 5.2 above was effectively solved by the claimed subject-matter.

5.5 Obviousness

5.5.1 The focus of E13 is on the properties of the final mouldings, namely providing compositions which can be moulded into articles having improved gloss and impact strength while maintaining adequate rigidity levels (page 2 line 2-22). Furthermore the compositions should be mouldable with essentially the same equipment as employed for conventional HDPE compositions without the need for any special measures (page 2 lines 22-26). E13 does not address the problem of improving the "mouldability" of polymer compositions.

5.5.2 E5, which was invoked by the respondent in combination with E13, discloses a process for the preparation of ethylene polymers using a specific metallocene catalyst and teaches that the polyethylene compositions thus prepared have a broad molecular weight distribution (expressed as the ratio of the melt indices under loads of 21.6 kg and 2.16kg at 190°C, HLMI/MI), high melt tension and high die swell and are suitable for inflation moulding and blow moulding (abstract; page 2, lines 5-10). Therefore, E5 belongs to the same technical field as E13 and the patent in suit. Furthermore E5 aims, as does the patent in suit, at providing polyethylene compositions for moulding applications.

However, E13 teaches that the low density polyethylene fraction B should generally have a polydispersity of 1.8 to 5 and that the mechanical properties and gloss of the moulded articles are impaired if a higher polydispersity is used (claim 1 in combination with page 9, lines 33-35). That statement is confirmed by the polydispersity values of the low density polyethylene fractions B disclosed throughout E13 (page 11, lines 19-20 and 27-28; page 12, lines 1-2), in particular for polyethylene SLEP 2 used in the composition of E13 identified above as forming the closest prior art (page 15, lines 11-12). Hence, E13 teaches to use a low density polyethylene having a narrow polydispersity.

The requirements regarding the polydispersity of the low density polyethylene fraction set out in E5 and E13 are, thus, incompatible with each other, meaning that it would not be obvious to combine these teachings.

- 5.5.3 The respondent further relied on the combination of E13 and E15. However, E15 requires that the molecular weights of both polyethylene fractions to be crosslinked should be such that the ratio of the molecular weight of the high molecular weight polyethylene to that of the low molecular weight polyethylene is 2 through 100 and explicitly teaches that the desired excellent physical and moulding properties of the crosslinked composition cannot be obtained if a molecular weight ratio of less than 2 is used (E15: col. 3, line 65 to col. 4, line 3). Considering that that requirement is not fulfilled by the composition of the closest prior art E13 (both polyethylene fractions have the same melt index and, therefore, the same molecular weight), the teaching of E15 is inherently incompatible with that of E13. Hence,

the combination of E15 and E13 is not obvious, in particular not in order to provide moulding articles having good mechanical properties.

5.6 Therefore, the subject-matter claimed is inventive over E13 as the closest prior art either alone or in combination with any of E5 and E15.

6. Inventive step: E15 as the closest prior art

6.1 The respondent considered in the alternative E15 as the closest prior art to E13.

6.1.1 E15 aims, as does the patent in suit, at providing ethylene compositions having good physical properties (high stiffness, high ESCR, high impact strength) as well as good moulding properties (improved melt tension and die swell: see col. 1, line 54 to col. 2, line 9; col. 2, lines 39-47; examples).

E15 discloses (lightly) crosslinked ethylene polymer compositions comprising a high molecular weight ethylene polymer A and a low molecular weight ethylene polymer B (claim 1) (letters A and B are used in opposite ways in E15 and in the patent in suit: in the patent in suit, A is the low molecular weight polyethylene and B is the high molecular weight polyethylene). The term "lightly crosslinking" means according to D15 col. 3 lines 1-6 crosslinking to such an extent that, in contrast to conventional crosslinking the polyethylene does not swell in a solvent such as xylene, i.e. so that gelling does not occur.

In example 1 of E15, a polyethylene composition is prepared by lightly crosslinking two polyethylene



fractions prepared using a titanium containing catalyst that are used in a weight ratio of 50:50 (col. 8, lines 36-38, 44-45 and 48-56) and have the following properties:

- (a) fraction A: density:  $0.946 \text{ g/cm}^3$  and molecular weight of 380 000;
- (b) fraction B: density:  $0.976 \text{ g/cm}^3$  and molecular weight: 21 000;
- (c) final composition: melt index: 0.21 g/10 min; density:  $0.961 \text{ g/cm}^3$ ; melt tension: 8.5 g; die swell: 38.0 g (E15: Table 1).

6.1.2 Hence, E15 belongs to the same technical field as the patent in suit and the composition prepared in example 1 is similar to the subject-matter of operative claim 1. Therefore, said composition represents a suitable starting point for the assessment of the inventive step.

6.1.3 The fact that E15 relates to the crosslinking and not to the mere blending of two polyethylene components is a feature related to the solution of the problem to be solved and is, thus, not considered as a relevant criterion for the selection of the closest prior art. The argument of the appellant that E15 would not be considered as a suitable starting point for that reason was, thus, not followed.

6.2 Problem to be solved

For the same reason as in the case of E13 (section 5.2), the problem to be solved is seen as to provide ethylene compositions having improved mouldability.

### 6.3 Solution

The solution to the above problem compared to the teaching of E15 resides in compositions according to operative claim 1, which differ from the composition of the closest prior art in that:

- (a) at least one polyethylene fraction is prepared using a metallocene catalyst.

In that respect, although E15 discloses that any catalyst may be used as long as they are suitable for the preparation of polyethylene components according to claim 1 of E15 (col. 4, lines 20-22), it does not specifically disclose metallocene catalysts.

- (b) the ethylene composition satisfies features (4) and (5) according to operative claim 1.

Regarding feature (4): considering that the methods of determination of the melt tension in E15 and in the patent in suit are not identical (compare col. 7, lines 46-49 of E15; page 12, lines 2-6 of the patent in suit), it is *a priori* not possible to evaluate that criterion on the basis of the data provided in Table 1 of E15. However, it was acknowledged by the respondent (letter of 18 October 2011: section 3.14) that none of the compositions of the examples of E15 satisfied feature (4) of claim 1.

Regarding feature (5), the method of determination of the swell ratio used in E15 (col. 15, lines 62-65) and in the patent in suit (paragraphs [0113]-[0115]) are not identical. Hence, the

values disclosed in Table 1 of E15 cannot be directly compared to those specified in feature (5) of operative claim 1.

#### 6.4 Success of the solution

For the same reasons as given in section 5.4, examples 1-4 of the patent in suit show that the technical problem identified in section 5.2, above, is effectively solved.

#### 6.5 Obviousness

6.5.1 E15 contains no hint how to improve the mouldability of the composition prepared in its example 1.

6.5.2 It was not disputed by the parties that the teaching of E15 and E5 could be combined. The Board sees no reason to deviate from that view since both documents belong to the same technical field and there was *a priori* no reason to prevent the skilled person from preparing any of the polyethylene fractions of E15 using a metallocene catalyst instead of the titanium catalysts disclosed therein.

The relevant question remaining is whether the skilled person would have found it obvious to combine the teachings of E15 and E5 in order to solve the technical problem identified above.

In that respect, the sole information regarding the density of the polyethylene prepared in E5 is given in example 14 (paragraph bridging pages 7-8), wherein an ethylene/butene-1 copolymer having a melt index of 0.75 g/10 min and a density of 0.925 g/ml is prepared. There is, however, no evidence on file that it is

possible to prepare a polyethylene fraction A or B according to operative claim 1 using the specific metallocene catalysts according to the teaching of E5. Hence, it cannot be concluded that the combination of E15 and E5 leads to the subject-matter of operative claim 1.

There is further no evidence on file that the process of E5 allows to prepare such a polyethylene component that, upon light crosslinking according to the teaching of E15, satisfies both criteria (4) and (5) according to operative claim 1. In that respect, it is taken into account that the melt tension of the compositions listed in Table 1 of E15 were considered as "too low" by the respondent. Hence, the skilled person would have had no motivation, not knowing the solution given by operative claim 1 (i.e. without hindsight), to combine E15 and E5 in order to solve the technical problem identified above.

- 6.5.3 As explained previously, the combination of E15 and E13 is also not obvious (see section 5.5.3).
- 6.6 Under such circumstances, the subject-matter claimed is held to be inventive over E15 alone or in combination with any of E5 and E13.
- 6.7 Therefore, the auxiliary request 1 fulfils the requirements of Art. 56 EPC.
- 7. Since the first auxiliary request of the appellant/patent proprietor is allowable, there is no need to deal with the other auxiliary requests.

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance with the order to maintain the patent on the basis of the first auxiliary request filed with letter of 19 August 2013 and after any necessary consequential amendment of the description.

The Registrar:

The Chairman:



E. Goergmaier

M. C. Gordon

Decision electronically authenticated