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**Datasheet for the decision  
of 23 June 2006**

**Case Number:** T 0757/03 - 3.3.03

**Application Number:** 96309512.0

**Publication Number:** 0781789

**IPC:** C08F 210/16

**Language of the proceedings:** EN

**Title of invention:**

Ethylene/alpha-olefin copolymer and film obtained therefrom

**Patent Proprietor:**

MITSUI CHEMICALS, INC.

**Opponent:**

Basell Polyolefine GmbH

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 100(b), 123(2)

EPC R. 71(2)

**Keyword:**

"Amendments - (main request - not allowable)"

"Disclosure - sufficiency (auxiliary request: no)"

**Decisions cited:**

T 0201/83, T 0343/90, T 0172/99

**Catchword:**

-



Case Number: T 0757/03 - 3.3.03

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.03  
of 23 June 2006

**Appellant:** Mitsui Chemicals, Inc.  
(Patent Proprietor) 5-2, Higashi-Shimbashi 1-Chome  
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**Representative:** Cresswell, Thomas Anthony  
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**Respondent:** Basell Polyolefine GmbH  
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**Representative:** -

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office dated 15 April 2003 and  
posted 21 May 2003 revoking European patent  
No. 0781789 pursuant to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** C. Idez  
**Members:** A. Däweritz  
E. Dufrasne

## Summary of Facts and Submissions

I. The grant of European patent No. 0 781 789 in respect of European patent application No. 96 309 512.0, filed on 27 December 1996 and claiming the priority of 28 December 1995 of an earlier application in Japan (JP34410495), was announced on 10 May 2000 (Bulletin 2000/19). The patent was granted with six claims, Claims 1, 5 and 6 of which read as follows:

- "1. An ethylene/C<sub>3-20</sub>  $\alpha$ -olefin copolymer which has the following properties:
- (i) the density is 0.880 to 0.960 g/cm<sup>3</sup>,
  - (ii) the melt flow rate at 190 °C under a load of 2.16 kg is 0.1 to 100 g/10 min,
  - (iii) the melt tension (MT (g)) at 190 °C and the melt flow rate (MFR (g/10 min)) satisfy the relation

$$MT \leq 2.2 \times MFR^{-0.84},$$

- (iv) the quantity fraction (W (% by weight)) of a decane-soluble component of said copolymer at 23 °C and the density (d (g/cm<sup>3</sup>)) satisfy the relation

in the case of MFR  $\leq$  10 g/10 min:

$$W < 80 \times \exp(-100(d-0.88)) + 0.1,$$

in the case of MFR > 10 g/10 min:

$$W < 80 \times (MFR-9)^{0.26} \times \exp(-100(d-0.88)) + 0.1,$$

- (v) the temperature (Tm (°C)) at the position of the maximum peak of an endotherm curve of said copolymer measured by a differential scanning calorimeter and the density (d (g/cm<sup>3</sup>)) satisfy the relation

$$Tm < 400 \times d - 248,$$

- (vi) the endotherm curve of said copolymer measured by a differential scanning calorimeter has two or more peaks, and the temperature ( $T_{m_1}$  ( $^{\circ}\text{C}$ )) at the position of the peak on the lowest temperature side, the temperature ( $T_m$  ( $^{\circ}\text{C}$ )) at the position of the maximum peak and the density ( $d$  ( $\text{g}/\text{cm}^3$ )) satisfy the relation

$$576 - 600d > (T_m - T_{m_1}) > 558 - 600d,$$

and

- (vii) a component, which is eluted at a temperature of not lower than  $100^{\circ}\text{C}$  in a temperature rise elution fractionation test (TREF), exists in said copolymer, and the amount of the eluted component is 0.5 to 10% of the total amount of the eluate.
5. A film of an ethylene/ $\alpha$ -olefin copolymer as defined in any one of claims 1 to 4.
6. A process for preparing a copolymer as defined in claim 1 or 2 which comprises copolymerizing ethylene and the  $\alpha$ -olefin in the presence of a prepolymerized catalyst obtained by prepolymerizing an olefin in the presence of
- (a) a transition metal compound,
  - (b) an organoaluminum oxy-compound,
  - (c) a fine particle carrier, and optionally
  - (d) an organoaluminum compound."

The remaining dependent Claims 2 to 4 related to elaborations of the copolymer according to Claim 1.

In this decision, references in brackets such as eg [0001] are directed to the corresponding passages in the description of the patent in suit (in this example: page 2, lines 5 to 7). In the typed version of the text, on which the printed EP-B1-specification was based, Claim 1 was described on pages 34 and 35.

II. On 9 February 2001, a Notice of Opposition was filed, in which, with reference to Article 100(a) and (b) EPC, revocation of the patent in its entirety was requested. More particularly, the Opponent asserted that the subject-matter of the patent in suit was not patentable within the terms of Articles 54, 56 and 83 EPC. In order to support its respective objections, the opponent cited *inter alia*

D3: M. H. Wagner et al., "The rheology of the rheotens test", Journal of Rheology, volume 42, pages 917 to 922, and

D4: EP-A-0 697 419.

(1) The novelty objection was based on D4.

(2) With regard to the issue of alleged insufficiency of disclosure under Article 100(b) EPC, the Opponent raised objections to features (iii), (iv), (vi) (erroneously referred to as "(v)") and (vii) of Claim 1.

Concerning the measurement of parameter MT (feature (iii)), the Opponent argued that it could not be carried out by a person skilled in the art, because it had not sufficiently been disclosed. In particular, the length of spin line L of the apparatus used in the measurement had not been indicated in the patent in

suit. According to D3, page 922, first paragraph, the measured value of MT depended, however, on this length. Hence, it was not possible for the skilled person to determine whether the measured MT value of a polymer fulfilled feature (iii) in the claim.

III. In reply to the Notice of Opposition, the Patent Proprietor filed, together with a letter dated 27 December 2001, a new first part of Claim 1 (page 34), wherein the lower limit ("0.1") of the MFR range (feature (ii)) had been replaced by "2.1" g/10 min, derived from Example 6 (copolymer A-6 on page 31 of the text as filed; EP-B: page 12). In support of its view that this amendment was allowable, reference was made to decisions T 201/83 (OJ EPO 1984, 481) and T 343/90 of 26 May 1992 (not published in OJ EPO).

As a reason for this amendment, the Patent Proprietor referred to the novelty objection based on D4/Example 7.

With respect to the objection against feature (iii), the Patent Proprietor argued that the information given in the specification was concerned with producing a value for MT of a copolymer, but "not the formation of a Rheotens grandmastercurve." and continued: "In light of the fact that page 9 lines 51 to 55 of the B-print contains the information used to measure the MT in the standard way using a machine manufactured by Toyo Seiki Seisakusho; the exact nature of the Opponent's objection is presently unclear to us." (page 2, item 4).

IV. Oral proceedings were held on 15 April 2003 before the Opposition Division, in the course of which the Patent Proprietor, according to the minutes (page 3, fourth

paragraph), stated that d, MFR and MT would be well known properties. If one followed the instructions as given in the patent in suit, a little bit of trial and error would be required in order to obtain the claimed copolymer. According to the Patent Proprietor, the only important feature would be the partial pressure of ethylene which had to be kept high, as illustrated by the examples.

- V. By a decision announced at the end of the oral proceedings and issued in writing on 21 May 2003, the Opposition Division revoked the patent. The decision held that "The European patent EP-0781789 in form of the request filed by letter dated 27.12.2001 (...) does not meet Articles 83 and 100(b) EPC" (No. II.4 of the reasons).

Whilst being satisfied that the requirements of Article 123(2) and (3) EPC were met by Claim 1 as amended on the basis of Example A-6 of the patent in suit, because the MFR was not internally connected with the other parameters in features (i) and (iii) to (vii), but could, therefore and as argued by the Patent Proprietor, "be isolated and could be independently changed" (No. 2 of the reasons), the Opposition Division held that some of the parameters in the claim were not disclosed in a way sufficiently clear and complete, so that a person skilled in the art could not carry out the claimed invention.

This finding was, in particular, held valid for the MT as defined in feature (iii) of Claim 1. Its measurement was described in [0093]. Whilst several essential parameters for its determination were given, such as

the resin temperature, the extrusion speed, the nozzle diameter and the nozzle length, the setting "length of spinline" was not defined in the patent in suit. "As the 'length of spinline' has significant influence on the resulting values of the melt tension, according to a plausibility consideration, as e.g. illustrated in D3 (D3: p 920/fig 2), the length of spinline has to be defined in a clear way." (No. 3.2.1 of the reasons).

Whilst, according to the Proprietor, the length of the spin line in the instrument used for the determination of the MT was fixed, this could not, however, be proved. Moreover, although the take up rate was also a setting of the apparatus having an influence on the resulting MT values (as shown in D3), the specification in [0093] described only a wide range (10 to 20 m/min) in which this setting could be varied, but not a fixed rate at which the measurements were performed.

The apparatus used for the MT determination, in particular its model designation, was not specified either, only the name of its producer had been given. There was, however, no evidence rendering it plausible that this apparatus as sold had remained unchanged especially in the length of spin line since the priority date of the patent in suit. Nor was an industrial standard given describing a method for the determination of the MT.

Consequently, the Opposition Division came to the above conclusion that the subject-matter claimed was not sufficiently disclosed and, in support of this view, it referred to decision T 172/99 of 7 March 2002 (not published in OJ EPO) quoting part of the Catchword of

the decision and stating that according to the decision "a parameter has to be formulated in a formally and complete manner such that its values can be obtained by a person skilled in the art without undue burden." (cf. No. 3.2.1 of the reasons, first paragraph).

VI. On 16 July 2003, a Notice of Appeal was filed against this decision by the Patent Proprietor/Appellant, who requested that the decision under appeal be set aside and the patent in suit be maintained in the amended form as submitted on 27 December 2001 (section III, above). The prescribed fee was paid on the same date.

(1) The Statement of Grounds of Appeal was received on 30 September 2003, including a further amended first part of Claim 1 (page 34) to replace, in its Main Request, the version mentioned above. In this further amended version, feature (i) was limited to the range of "0.890 to 0.935 g/cm<sup>3</sup>" (application as originally filed: page 6, lines 7 to 9; and [0017]) in addition to the previous limitation of the MFR (section III, above) which, in the Appellant's view, had correctly been allowed in the decision under appeal for the reasons given in section V, above.

Additionally, Annexes 1 to 8 were submitted by the Appellant to support its arguments, including Annexes

- 1: a table showing a series of parameters (MFR, density  $d$ , MT, W, % C<sub>6</sub> and H<sub>2</sub>/C<sub>2</sub>) of Examples 1 to 6 of the patent in suit and of a repetition of an example said to correspond to Example 7 of D4, and a plot of the H<sub>2</sub>/C<sub>2</sub> ratio versus MFR;

- 6: "instruction manual from the melt tension measuring machine manufactured by Toyo Seiki Seisakusho" (in Japanese); and
- 7: a copy of Fig. 1 of Annex 6 (page 5).

Annex 1 would demonstrate that the MFR of a polymer could be changed independently from other parameters by variation of the amount of hydrogen fed into the polymerisation reactor (page 2, paragraphs 2 and 3).

(2) The reasons for the revocation of the patent in suit, namely those concerning the MT (feature (III)), were not, in the Appellant's opinion, correct. Thus, the Appellant argued that decision T 172/99 (above) was not applicable to this parameter, because MT was a common parameter frequently measured for the type of copolymer claimed. T 172/99, however, "concerns the definition of a newly reformulated and unfamiliar parameter" (page 7, item 3.2.1, first paragraph).

(3) As regards the question concerning the broad range of the take up rate, the Appellant argued that MT would not be "significantly influenced by the take up rate, when the take up is between 10 to 20 m/min. The Patentee is currently in the process of preparing data to support such an assertion.". With regard to the length of the spin line, the Appellant commented on the basis of Annexes 6 and 7, above, that, in Fig. 1, "the length of the spin line is clearly indicated. According to the instruction manual, at page 17, 3-4 (2)(c), the height from orifice (detection height of melt tension) may be set by moving the table using the scale board. Thus, upon review of the instruction manual for the machine, it would appear that it is possible to vary the length

of the spin line. Until the manual had been located in reaction to the decision of the Opposition Division, the Patentee had believed that the spin line distance was fixed and this was stated during the Oral Proceedings. . . . However, the Patentee believes that the relevant staff have always used this machine with a spin line distance of 50 cm. It is believed that this is the length of spin line which would usually be used by the skilled person and which is most suitable for the melt tension measuring machine manufactured by Toyo Seiki Seisakusho. Moreover it is believed that the selection of spin line distance has little effect on the result of the measurement of melt tension and the Patentee is also conducting work to support that assertion. Since the two variables which are not explicitly expressed in the present specification either are of little significance to the value of melt tension or would be used by the skilled person, the determination of the melt tension is thus sufficiently disclosed." and the Appellant continued: "Declarations relating to the foregoing experimental work will be filed as soon as possible." (Statement of Grounds of Appeal: page 7, last paragraph and page 8, paragraphs 1 and 2).

(4) As an Auxiliary Request, the Appellant requested that the case be remitted to the first instance for further examination of novelty and inventive step.

VII. The arguments of the Appellant were disputed by the Respondent (Opponent) in its letter dated 16 April 2004, in particular, those concerning the questions of insufficiency of disclosure, and the Respondent fully supported the decision under appeal.

(1) It pointed out that the application as filed did not contain any information as to the length of the spin line, in particular there was no reference to a length of 50 cm. However, from the instruction manual it would come out that this distance could vary significantly. Nor had the Patent Proprietor been aware of the length of the spin line at the filing date of the application from which the patent in suit was derived. Furthermore, no information had been given as to a precise value of the take up rate, the apparatus used to measure the MT or a standard method for this measurement (item 3.2 of the letter).

(2) The Respondent concluded that the identification of suitable conditions of polymerisation to obtain polymers fulfilling all the features (i) to (vii) of Claim 1 would only be possible for a person skilled in the art after an extensive trial and error procedure exceeding the normal routine work. Thus, with regard to the statement of the Patent Proprietor, that the ethylene partial pressure would have to be high (section IV, above), the Respondent remarked that, whilst, in Example A-1 of the patent in suit, the ethylene partial pressure was clearly indicated, Examples A-2 to A-6 gave only the generic teaching that "the gas composition was varied so that the resulting ethylene/ $\alpha$ -olefin copolymers (A-2) to (A-6) had densities and MFR shown in Table 1". The description would, however, indicate that the partial pressure of ethylene was desirably 40 to 90 % of the total pressure (patent in suit: page 8, line 14). In the light of this latter passage, the disclosure as quoted above from the examples would be too generic (letter: page 7,

penultimate paragraph). Therefore, no technical concept was given which was fit for generalisation.

(3) Moreover, the Respondent pointed out that the MFR was not independent from the further parameters as shown by the relationship between the MT and the MFR as given in the definition of feature (iii). By the introduction of the new lower limit of the MFR range, a new upper limit of the MT range would implicitly be set, which would not have a basis in the application as originally filed. Consequently, Article 123(2) EPC was not, in the Respondent's opinion, complied with (item 2. of the letter).

VIII. In reply to summons to oral proceedings, the Respondent informed the Board by letter dated 24 May 2006 that it would not, for internal reasons, attend the scheduled oral proceedings on 23 June 2006. Nevertheless it would maintain its opposition against the patent in suit. For the case that the decision under appeal would be set aside, it requested that the case be remitted to the first instance for further examination of the issues of novelty and inventive step.

IX. The oral proceedings were held as scheduled, in the absence of the Respondent.

(1) They focused on the questions of whether the requirements of Article 123(2) EPC were met by the limitation of feature (ii) and on the question of whether MT of feature (iii) was disclosed in a manner sufficiently clear and complete, so that the claimed subject-matter could be carried out by a person skilled in the art.

(2) With regard to the first issue, the Appellant reiterated its previous submissions, that (i) the MFR could be controlled independently from the other parameters in the claim and (ii) the patent in suit contained all the information necessary to obtain a polymer fulfilling this requirement.

(3) In order to avoid that the revocation was maintained for this reason, the Appellant then filed a 1<sup>st</sup> Auxiliary Request, which differed from the version as granted (see section I, above) only by the limitation of the density to a range of from "0.890 to 0.935 g/cm<sup>3</sup>", whilst, contrary to the Main Request, the limits of feature (ii) as granted were maintained, ie the MFR range extended from "0.1 to 100 g/10 min".

(4) In the discussion about the sufficiency of disclosure with regard to the MT, the Appellant also reiterated its previous arguments. In addition, it pointed out that the MT as defined in the patent in suit did not refer to the Rheotens measurement, but to a MT determination in a different way on a different machine, and that the Appellant had not intended to measure Rheotens values. If it had had that intention, it would have used the Rheotens machine. Whilst the length of the spin line and the take up rate were important for the Rheotens test (as disclosed in D3), which required that the film leaving the extrusion die did not solidify before it had reached the rotational clamps of the Rheotens apparatus (ie it remained in molten state along the whole length of the spin line), this would not be the case in the measurement carried out by the Appellant. In this determination, the film

could and would solidify shortly after having left the die. Therefore, the length of the spin line would be of no importance, because the MT was measured only in this short range, where the film was still in the molten state. Nor would the exact take up rate be decisive. Hence the two above criteria were not of importance for the measurement according to the patent in suit, and the absence of their description, which fact had wrongly been deemed defective, would not prevent the skilled person from carrying out the claimed subject-matter.

Moreover, in the opinion of the Appellant, the explanation, that "a MT measuring machine (manufactured by Toyo Seiki Seisakusho)" had been used, gave all the information necessary for the purpose of sufficiency of disclosure, because there was no information that a machine had been produced by that company which would have been different from that used by the Appellant. The manual (Annex 6, above), which was partly handwritten, would clearly indicate that there was no other apparatus which would comply with the above definition of the machine in the patent in suit. At least the Appellant was not aware of such a possibility.

(5) At the end of the debate, the Appellant clearly stated that it did not want to file further requests.

- X. The Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the Main Request submitted with the Statement of Grounds of Appeal, or, in the alternative, of the 1<sup>st</sup> Auxiliary Request filed during the oral proceedings.

According to its written submissions, the Respondent requested that the appeal be dismissed, or, in the alternative, that the case be remitted to the first instance for further examination.

### **Reasons for the Decision**

1. The appeal is admissible.
2. Since all the parties had duly been summoned, the proceedings were continued in accordance with Rule 71(2) EPC in the absence of the Respondent.

#### *Main Request*

3. *Article 123(2) EPC*
  - 3.1 Claim 1 of the Main Request (section VI(1) in conjunction with section III, above) differs from Claim 1 as originally filed by
    - (a) the density range of 0.890 to 0.935 g/cm<sup>3</sup> (feature (i)),
    - (b) the MFR range of 2.1 to 100 g/10 min (feature (ii)), and
    - (c) the amount of the eluted component being 0.5 to 10% of the total amount of the eluate (feature (vii)).
  - 3.2 Whilst amendment (a) and pre-grant amendment (c) find their support on page 6, lines 7 to 13 of the application as originally filed, it is, however, clear that the lower limit of the MFR range (amendment (b))

has only been disclosed in Table 1(1) of Example 6 on page 31 (copolymer A-6) as originally filed.

The question then arises of whether this example provides an allowable basis for the amendment made.

- 3.3 In this respect, the Appellant relied on the decision T 201/83 (above) in order to support the allowability of amendment (b) under Article 123(2) EPC.

According to the reasoning in T 201/83, which dealt with a case concerning two different inorganic components being added to an alloy, whereby "no stoichiometric quantity" of the one component was required in relation to the other component (No. 5 of the reasons), "The Board holds the view that an amendment of a concentration range in a claim for a mixture, such as an alloy, is allowable on the basis of a particular value described in a specific example, provided the skilled man could have readily recognised this value as not so closely associated with the other features of the example as to determine the effect of that embodiment of the invention as a whole in a unique manner and to a significant degree." (No. 12 of the reasons).

- 3.4 In the present case, feature (iii) is, however, defined in Claim 1 in terms of the equation:

$$MT \leq 2.2 \times MFR^{-0.84},$$

which indicates that there is a mutual relationship/association/link between MFR and MT, contrary to the arguments of the Appellant (section VI(1), above).

3.4.1 In order to demonstrate the independence of MFR from the other parameters of the claimed copolymer, the Appellant had filed Annex 1, which provided MFR values, densities, hexene contents, FI values, MT values and W values of copolymers obtained in seven experiments together with the H<sub>2</sub>/C<sub>2</sub>-ratios applied therein.

When comparing the product parameter data of experiments "Ex.1" to "Ex.6" with those in Tables 1(1) and 1(2) of the patent in suit, it is evident that they relate to the same products, despite the fact that the H<sub>2</sub>/C<sub>2</sub>-ratios in Annex 1 differ from the sole value given in Preparation Example 1 (paragraph [0111]: "4.6×10<sup>-4</sup>") by four magnitudes. This latter H<sub>2</sub>/C<sub>2</sub>-ratio relates to copolymer (A-1) having values of all the parameters mentioned above with regard to Annex 1 (including the MFR) which are identical to those of the polymer of Example 1 in Annex 1 referring to a H<sub>2</sub>/C<sub>2</sub>-ratio of "4.6".

Whilst it has been shown in the table and the plot of Annex 1 that, when using a higher H<sub>2</sub>/C<sub>2</sub>-ratio in the polymerisation at 80°C (as in Examples 1 to 3, 5 and 6), a copolymer having a higher MFR value was obtained (see copolymers (A-1) to (A-3), (A-5) and (A-6), respectively), the table, however, shows also clearly and unambiguously that the MT of the copolymer steadily decreased with the increase of the H<sub>2</sub>/C<sub>2</sub>-ratio and, hence, that the increase of the MFR was associated with a decrease of the MT. This finding is in compliance with the above equation in Claim 1 (section 3.4, above).

3.4.2 In the Statement of Grounds of Appeal, the Appellant had argued with reference to Annex 1: "It is well known in the art that the MFR of a polymer depends upon the

*amount of hydrogen* fed into the polymerisation reactor. The table in the annex clearly shows that as the amount of hydrogen increases, the MFR also increases and that the other parameters are not changed in a similar manner." (emphasis added). However, the evidence provided by the Appellant does not support this assertion, as will be shown herein below.

According to the description of Preparation Example 1 in the patent in suit, a mixture of ethylene, hexene-1, hydrogen and nitrogen was continuously fed to the polymerisation reactor in order to maintain the gas composition constant during the polymerisation. Further details of the gas feed referred only to a total pressure of 20 kg/cm<sup>2</sup>-G, an ethylene content of 70% and the ratios between the C<sub>6</sub>/C<sub>2</sub>- and H<sub>2</sub>/C<sub>2</sub>-components [0111].

In the further Examples 2 to 6 of the patent in suit, it was only stated that the products "were obtained in the same manner as in the preparation example except that the gas composition was varied so that the resulting ethylene/ $\alpha$ -olefin copolymers (A-2) to (A-6) had densities and MFR as shown in Table 1" [0114].

As already addressed by the Respondent (section VII(2), above), this information in Examples 2 to 6 does not, however, allow to derive, neither directly nor by calculation, the individual amounts of the C<sub>2</sub>- and C<sub>6</sub>-components, of hydrogen and of nitrogen in the gas mixture fed to the polymerisation reactor. Nor can these missing details be derived from the comonomer content of the copolymer in the tables of the patent in suit (cf. patent in suit: page 12, lines 11/12 and 21/22). The description only refers to a partial

pressure of the monomers being "desirably 40 to 90 % of total pressure, preferably 50 to 80 %" [0071].

Although Annex 1 additionally discloses the H<sub>2</sub>/C<sub>2</sub> ratio for all the examples in the patent in suit (cf. section 3.4.1, above), this ratio does not, however, provide any information as to the amount of hydrogen fed into the reactor in any one of Examples 2 to 6.

3.4.3 Consequently, the Board can only come to the conclusion that the evidence provided by the Appellant does not support its assertion, that the MFR is independent from (or, in the terms used in T 201/83, above; No. 12 of the reasons: "not so closely associated with") the other parameters of the copolymer, in particular its MT. The Board takes therefore the view that the MFR value disclosed in Example 6 of the patent in suit cannot be used to amend Claim 1 without infringing Article 123(2) EPC.

3.5 Nor can the reference to decision T 343/90 (above) support the allowability of amendment (b) under Article 123(2) EPC, since, in contrast to the case dealt with in T 343/90 (No. 2.2 of the reasons), the present Board has reasons, in view of the above relationship (section 3.4, above) and as shown above with regard to the experimental data in the patent in suit and in Annex 1, to assume that, in the present case, the MFR is clearly associated at least with the MT of the copolymer A-6 of Example 6.

3.6 Therefore, the Board has come to the conclusion that the requirements of Article 123(2) EPC are not met by

Claim 1 of the Main Request. Consequently, this request cannot not be allowed.

*1<sup>st</sup> Auxiliary Request*

4. *Article 123 EPC*

Claim 1 of this Auxiliary Request contains only the amendments (a) and (c) mentioned in section 3.1, above. As pointed out in section 3.2, above, Article 123(2) EPC is complied with in regard to both modifications of the claim.

Since the only modification of the claim carried out after grant, amendment (a), further limits the scope of Claim 1 as granted, the Board is also satisfied that Article 123(3) EPC is complied with.

Hence, this request meets the requirements of Article 123(2) and (3) EPC.

5. *Article 100(b) EPC*

The decision under appeal held that the patent in suit did not disclose the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (section V, above). This revocation was based on the finding that *inter alia* the determination of MT of feature (iii) of Claim 1 had not been sufficiently disclosed.

- 5.1 This parameter relates to "melt tension" (MT) which is, according to [0093], determined by measuring a stress given when a molten polymer is stretched at a constant

rate by means of "a MT measuring machine (manufactured by Toyo Seiki Seisakusho) under the conditions of a resin temperature of 190 °C, an extrusion speed of 15 mm/min, a take-up rate of 10 to 20 m/min, a nozzle diameter of 2.09 mm and a nozzle length of 8 mm."

- 5.1.1 It is evident from the above passage of the description that the measured value of this parameter is clearly affected by the apparatus as such and its settings controlling the measuring conditions.

This has been confirmed by the Appellant who, in the oral proceedings, put emphasis on the argument that the MT measurement was not identical to the Rheotens test, as eg described in D3 (section IX(4), above). Thus, the Appellant stressed that, as opposed to the Rheotens test which included a different measuring concept (as explained in the oral proceedings, cf. section IX(4), above, second half of paragraph 1; and Statement of Grounds of Appeal, item 3.2.1; section VI(3), above), the spin line and the take up rate were believed to be of no or only little importance, or of "little significance" and to have only "little effect", respectively, for the test used in the patent in suit. In order to support these assertions, the Appellant had announced the filing of further experimental data (section VI(3), above). The Board can, however, only state that these experiments were never received.

- 5.1.2 The Appellant also emphasised that the machine used in the patent in suit was different from the Rheotens device (see section IX, above), and it filed Annexes 6 and 7, in order to show this difference. It also submitted that a particular length of the spin line had

been used (50 cm). This additional information was also to complete the description of the patent in suit, wherein besides some measuring conditions such as the extrusion speed and temperature and the take up rate, only the producer of the machine and the dimensions of the die ("nozzle") had been identified (cf. the decision under appeal as addressed in section V, above, and section 5.1, above).

5.1.3 In this respect, the Board observes that the manual of Annex 6 has been made available only in Japanese. Thus, besides some schematic drawings showing a machine and some details thereof, displaying *inter alia* a number of control panels which obviously allow to choose different settings, it has not been possible for the Board to get any further information from the text of the manual, which was furthermore at least partly hand-written.

5.1.4 Independently of the fact that this manual is partly hand-written, which is, in the Board's view, rather unusual for an apparatus presented as being commercially available, the Board is unable to find in the document either its date of publication or the name of the supplier of the apparatus described therein.

Consequently, this document provides no proof that the apparatus disclosed therein had been available to the public, nor that the apparatus disclosed therein had been the only MT measuring device supplied by Toyo Seiki Seisakusho before the priority date of the patent in suit.

Nor is the Board, in view of these findings, in a position to accept that the skilled reader could clearly and unambiguously identify the machine described in Annex 6 as the apparatus to be used, according to paragraph [0093], for the determination of the MT.

- 5.1.5 Furthermore, the Board concurs with the finding in T 172/99 (above), that the question of whether there is a valid ground for opposition according to Article 100(b) EPC can only be answered on the basis of the content of the application as originally filed. Later-filed information cannot be relied on to heal any deficiencies in the original disclosure (No. 4.5.9 of the reasons).
- 5.2 Whilst having no doubts that the MT as eg described in D3 and as referred to therein as "Rheotens", which had been "developed by Meissner (1969, 1971)" (D3: page 917, penultimate paragraph), had, indeed, become a common parameter frequently measured for the type of copolymer claimed, the Board must nevertheless take into account that, as pointed out by the Appellant itself (see the previous paragraphs), the method of determination and the principle underlying the determination of that Rheotens-MT are different from those used according to the patent in suit.
- 5.2.1 Thus, in contrast to the Rheotens method working with a melt along the whole spin line extending from the extrusion die to the rotational clamps (cf. eg D3: page 919, Fig. 1, ie a constant value), the film solidifies, according to a statement of the Appellant, in the method of the patent in suit shortly after

having left the extrusion die, after some cooling below the resin temperature of 190°C reported in [0093] (section IX(4), above). The distance of this solidification point (on the spin line) from the die depends, besides the initial resin temperature (in view of the above statements of the Appellant, the 190 °C value can only be understood to mean the temperature at the exit of the extrusion die) on the extrusion speed (15 mm/min), the take up rate (10 to 20 m/min) and the surrounding temperature conditions.

Since the take up rate is only defined in terms of a range (see the previous paragraph) and the surrounding temperature conditions are nowhere defined, the point where the film solidifies is not defined at all and, hence, the length of the film in molten state is variable. Furthermore, the Appellant has not excluded that the length of the spin line and the take up rate may have some (although little) effect on the result of the measurement (cf. sections VI(3) and 5.1.1, above).

- 5.2.2 Hence the Board concurs with the statement of the Appellant that the melt tension measured according to [0093] is different from the results of a Rheotens measurement (sections IX(4) and 5.2, above). This means, however, in the Board's view, that despite the common term of "melt tension" used for the measurements according to either method, they relate to different parameters, contrary to the opinion of the Appellant as expressed in its Statement of Grounds of Appeal (section VI(2), above).

Moreover, nothing can be derived from the patent in suit or any other reference in the file which would

indicate that the determination described in [0093] had been a well known procedure or even an industrial standard method and that this MT has, in fact, been a common parameter frequently measured for such polymers. This implies that the Appellant has formulated its own "melt tension" parameter. In other words, the MT referred to in the patent in suit amounts to "a newly reformulated and unfamiliar parameter" (cf. section VI(2), above).

- 5.3 In these circumstances, the Board cannot, therefore, concur with the opinion of the Appellant that the criteria laid down in decision T 172/99 (above) would not be applicable to the present situation (section VI(2), above).
- 5.3.1 Furthermore, as shown above and as in the case of T 172/99, the patent in suit does not provide all details of the method for measuring the parameter in question which have an influence on the measurement, but additional information was provided with the aim to remedy this defect of the disclosure. As pointed out in section 5.1.5, above, this is, however, not allowable.
- 5.3.2 According to [0005], the MT is one of the critical parameters of the polymer, indispensable for achieving the goals of the patent in suit, excellent mouldability and excellent film properties.
- 5.3.3 In view of the above findings, the Board has, therefore, come to the conclusion that MT of feature (iii) of Claim 1 has not been disclosed in a formally correct and complete manner such that its values can be obtained by a person skilled in the art without undue

burden (criterion (i) in No. 4.5.6 of the reasons in T 172/99, above), let alone is he in a position to establish whether he would obtain results in a manner which reliably retains the validity of the parameter for the solution of the technical problem for the patent in suit as a whole in the sense that the values routinely obtained will not be such that the claimed subject-matter covers variants incapable of providing the relevant effect or, therefore, of solving the associated technical problem (criterion (ii) of those reasons in that decision).

5.4 Consequently, the Board has come to the conclusion that the objection of insufficient disclosure on the basis of Article 100(b) EPC has been well-founded, so that the decision under appeal having come to the same result cannot be reversed.

## **Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

E. Görgmaier

C. Idez