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**D E C I S I O N**  
**of 31 August 2000**

**Case Number:** T 0326/97 - 3.2.5

**Application Number:** 88304667.4

**Publication Number:** 0292336

**IPC:** B29C 47/00

**Language of the proceedings:** EN

**Title of invention:**

Linear low density polyethylene cast film

**Patentee:**

THE DOW CHEMICAL COMPANY

**Opponent:**

Exxon Chemical Patents Inc.  
Union Carbide Corporation

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 100(b), 83

**Keyword:**

"Sufficiency of disclosure (no)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 0326/97 - 3.2.5

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.5  
of 31 August 2000

**Appellant:** The Dow Chemical Company  
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**Representative:** Raynor, John  
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**Respondent I:** Exxon Chemical Patents Inc.  
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**Representative:** UEXKÜLL & STOLBERG  
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**Respondent II:** Union Carbide Corporation  
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**Representative:** Barz, Peter, Dr.  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 24 January 1997  
revoking European patent No. 0 292 336 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** W. Moser

**Members:** W. R. Zellhuber  
A. Burkhart

## Summary of Facts and Submissions

- I. The appellant (patent proprietor) lodged an appeal against the decision of the Opposition Division revoking the patent No. 0 292 336.
- II. Oppositions were filed against the patent as a whole and based on Article 100(a) and (b) EPC.

The Opposition Division held that, inter alia, the ground for opposition mentioned in Article 100(b) EPC prejudiced the maintenance of the patent.

It referred to the document

D5: EP-A 0 107 076

which described a process of extrusion coating a LLDPE polymer film. The polymer used thereby had properties similar to those specified in the patent in suit. Document D5 showed that when using such a polymer the maximum line speed was at most 1.53 m/s which was well below the claimed line speed (greater than 4 m/s).

The patent in suit therefore did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

- III. The appellant requested as a main request that the decision under appeal be set aside and the patent be maintained on the basis of the claims 1 to 9 filed with the Grounds of Appeal on 30 May 1997 or, as an auxiliary request, that the decision under appeal be set aside and the case be remitted to the first

instance for further prosecution.

An auxiliary request for oral proceedings filed with the Grounds of Appeal has been withdrawn by the appellant. He requested instead that the matter be determined on the basis of the papers on the file (cf. letter of 20 April 2000).

- IV. The respondents I and II (opponents 01 and 02) requested that the appeal be dismissed. As an auxiliary request, both respondents requested oral proceedings.
- V. Present claim 1 reads as follows:

"1. A process for increasing the line speed of extrusion casting or coating a LLDPE polymer film, said LLDPE polymer consisting essentially of ethylene interpolymerized with from 1 per cent to 60 per cent by weight of at least one C<sub>3</sub>-C<sub>12</sub> alkene of to form an interpolymer having a density in the range of from 0.87 to 0.955 gm/cc and having a melt index, I<sub>2</sub> in the range of 1 to 10 gm/minutes as determined by ASTM D-1238-E characterised in that the LLDPE polymer has value of I<sub>10</sub>/I<sub>2</sub> of from 4 to less than 7.0, (wherein the value I<sub>10</sub> is determined by ASTM D-1238-N), and in that a line speed of greater than 4 m/s (800 ft/min) is employed."

- VI. The appellant argued as follows:

The patent in suit was based on the discovery that the speed of an extrusion-casting or extrusion-coating line could be increased substantially by selecting a polymer having a particular combination of properties as specified in claim 1. The choice of such a material resulted in a reduction in the tendency of extrusion-

casting or extrusion-coating to show the phenomena known as "draw resonance", which limited the speed at which the machine could be operated.

The decision of the Opposition Division was flawed in that it failed to take into account the fact that the apparatus disclosed in document D5 employed a nip roll adjacent the cooling roll. It had been known that the use of a nip roll was optional and that it would reduce the maximum line speed.

A person skilled in the art would immediately appreciate that, in order to achieve the desired high line speeds, it would be necessary to employ a line which did not utilise a nip roll.

Moreover, measurement by the appellant on the polymer material G-7042, mentioned in document D5, indicated that the index  $I_{10}/I_2$  was 7.5 which was outside the range at present claimed (less than 7.0).

VII. The respondents argued as follows:

Document D5 showed that the claimed line speeds could not be achieved by using a polymer material as specified in present claim 1. The discrepancy between the teaching of document D5 and that of the patent in suit could not be explained by pointing out that the apparatus disclosed in document D5 employed a nip roll. The patent in suit, in particular claim 1, did not reflect the apparently important fact that a nip roll had not to be employed. On the contrary, dependent claim 7 taught the use of a nip roll as preferred embodiment.

Therefore, the patent in suit did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

Furthermore, an introduction of the feature, that a nip roll had not to be employed, would extend the subject-matter of the patent in suit beyond the original disclosure and would thus contravene Article 123(2) EPC.

## **Reasons for the Decision**

### *Insufficiency of disclosure (Article 83 EPC)*

1. In its introductory part, the patent in suit refers to a plurality of prior art documents, which describe processes for extruding LLDPE films and various means for reducing the incidence of draw resonance by the use of additional mechanical means or specific materials like blends of LDPE and LLDPE. As an example, document D5 describes a process for extruding LLDPE films wherein the incidence of draw resonance is reduced by applying an air stream onto the polymer film between the die exit and the nip roller. An increase of the maximum line speed can thus be achieved.
  
2. The problem underlying the patent in suit is seen in the "need for other means of avoiding draw resonance problems when extruding LLDPE which avoids having to add other polymers to it and avoids having to apply mechanical changes in the extrusion equipment whereby the drawing process is altered", cf. page 3, lines 40 to 42 of the patent in suit.

3. According to the present invention, this object could be achieved by selecting a LLDPE polymer having specific properties, in particular a predetermined  $I_{10}/I_2$  ratio, which according to present claim 1, should allow line speeds greater than 4 m/s.
  
4. However, the polymer materials suggested in document D5 have properties which are similar to those mentioned in the patent in suit. In particular, it was not under dispute that one of the compounds mentioned in document D5, namely GRSN-7042 (cf. examples VI, VII, IX, X and XI), meets the requirements cited in the preamble of present claim 1 as far as the composition, density and melt index  $I_2$  are concerned.

Only the melt index ratio  $I_{10}/I_2$  of that compound is not explicitly indicated in document D5. However, the respondent II measured a value of 7,1 (cf. Notice of Opposition) and the appellant a value of 7,5 (cf. Notice of Appeal). Thus, the polymer material cited in document D5 has a melt index ratio  $I_{10}/I_2$ , which is, at least, close to the maximum value of 7,0 as now claimed in present claim 1.

Nevertheless, document D5 indicates that, when using a polymer material like GRSN-7042, the maximum line speed attainable before a draw resonance was recorded had been 1.53 m/s (300 feet/minute). The maximum line speed could be increased up to 3,4 m/s (650 feet/minute) when using a special technical equipment, i.e. when directing a fluid medium against the molten film.

5. The appellant explained the difference between the maximum line speeds indicated in document D5 and those



indicated in the patent in suit in that document D5 described a process wherein a nip roll is used, which would reduce the maximum line speed.

Therefore, it must be assumed that, without using additives or a specific technical equipment, line speeds of greater than 4 m/s cannot be achieved simply by selecting a LLDPE polymer having specified properties, as taught in the patent in suit, cf. page 3, line 40 to page 4, line 3.

On the contrary, the appellant confirmed that, in order to achieve the desired line speeds, a special technical equipment must be used, namely an extrusion-casting or extrusion-coating line without a nip roll.

6. However, the patent in suit is silent about the need for such a technical equipment and does not suggest the use of an extrusion-coating system without a nip roller. On the contrary, the patent in suit suggests as preferred embodiment an apparatus wherein a nip roll is used, cf. present claim 7 and former claim 10 of the patent in suit as granted.

Furthermore, no support can be found in any of the cited documents for the argument of the appellant that a person skilled in the art "would immediately appreciate that, in order to achieve the high line speeds indicated, it would be necessary to employ a line which did not utilise a nip roll" (page 3, first paragraph of the Grounds of Appeal).

The Board notes that the appellant did not produce any evidence in support of this argument. Furthermore, the introductory part of the patent in suit which reflects

the prior art at the priority date of the patent, refers to extrusion coating systems comprising a nip roll, e.g. document D5, and no hint as to an extrusion system without a nip roll can be found.

To sum up, the patent in suit does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC). The ground for opposition mentioned in Article 100(b) EPC together with Article 83 EPC therefore prejudices the maintenance of the patent.

## **Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

A. Townend

W. Moser