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**Datasheet for the decision
of 24 March 2023**

Case Number: T 1178/20 - 3.3.03

Application Number: 12881172.6

Publication Number: 2875073

IPC: C08L23/08, C08F210/16,
B29K23/00, B32B27/20,
B32B27/32, B29C55/02, B29L9/00,
C08J5/18, C08F4/659, C08L23/06

Language of the proceedings: EN

Title of invention:

A LINEAR LOW DENSITY POLYETHYLENE COMPOSITION SUITABLE FOR CAST
FILM

Patent Proprietor:

Dow Global Technologies LLC

Opponents:

Borealis AG
TotalEnergies OneTech Belgium

Relevant legal provisions:

EPC Art. 56, 83
RPBA 2020 Art. 13(2)

Keyword:

Inventive step - main request and auxiliary requests 1-2 (no)
Amendment after summons - exceptional circumstances (no)
Sufficiency of disclosure - auxiliary request 3 (yes)

Decisions cited:

T 2920/18, T 2988/18, T 0247/20



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Case Number: T 1178/20 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 24 March 2023

Appellant 1: Dow Global Technologies LLC
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
10 March 2020 concerning maintenance of the
European Patent No. 2875073 in amended form.**

Composition of the Board:

Chairman D. Semino
Members: M. Barrère
 W. Ungler

Summary of Facts and Submissions

- I. The appeals of the patent proprietor and of opponent 2 lie against the interlocutory decision of the opposition division concerning maintenance of European Patent number 2 875 073 in amended form on the basis of the claims of the first auxiliary request filed during oral proceedings on 3 February 2020 and an amended description.
- II. The following document was *inter alia* cited in the contested decision:
- D1: WO 2011/109563 A2
- III. In that decision the opposition division held, amongst others, that:
- The opposed patent complied with the requirements of sufficiency of disclosure.
 - Claim 1 of the first auxiliary request involved an inventive step over D1 as the closest prior art.
- IV. The patent proprietor and opponent 2 (respectively appellants 1 and 2) filed an appeal against said decision. With the statement of grounds of appeal, appellant 1 filed two sets of claims as first and second auxiliary requests.

For the sake of completeness, it is noted that opponent 1 did not actively participate in the appeal proceedings.

- V. Appellant 1 filed seventeen additional sets of claims as third to nineteenth auxiliary requests with their rejoinder to appellant 2's statement of grounds of appeal.
- VI. Oral proceedings were held before the Board on 24 March 2023.
- VII. Appellant 1 requested that the decision of the opposition division be set aside and that the patent be maintained as granted (main request) or, in the alternative, in amended form on the basis of one of the first or second auxiliary requests filed with the statement of grounds of appeal or the third to nineteenth auxiliary requests filed with the rejoinder to the statement of grounds of appeal of appellant 2.
- Appellant 2 requested that the decision under appeal be set aside and the patent be revoked.
- VIII. Claims 1 and 2 as granted (main request of appellant 1) read as follows:

"1. A linear low density polyethylene (LLDPE) composition suitable for cast film consisting of:

an ethylene/ α -olefin interpolymer composition having a Comonomer Distribution Constant (CDC) in the range of from 40 to 150, a vinyl unsaturation of less than 0.12 vinyls per one thousand carbon atoms present in the backbone of the ethylene-based polymer composition; a zero shear viscosity ratio (ZSVR) in the range from 1.5 to 4; a density in the range of from 0.915 to 0.925 g/cm³, a melt index (I₂) in a range of from 2 to 6 g/10 minutes, a molecular weight distribution (M_w/M_n) in the range

of from 2 to 3.5; and one or more additives selected from the group consisting of antistatic agents, color enhancers, dyes, lubricants, fillers, opacifiers, nucleators, processing aids, pigments, primary antioxidants, secondary antioxidants, processing aids, UV stabilizers, anti-blocks, slip agents, tackifiers, fire retardants, anti-microbial agents, odor reducer agents, anti-fungal agents, and combinations thereof."

"2. A cast film consisting of

a linear low density polyethylene comprising an ethylene/ α -olefin interpolymer composition having a Comonomer Distribution Constant (CDC) in the range of from 40 to 150, a vinyl unsaturation of less than 0.15 vinyls per one thousand carbon atoms present in the backbone of the ethylene-based polymer composition; a zero shear viscosity ratio (ZSVR) in the range from 1.5 to 4; a density in the range of from 0.915 to 0.925 g/cm³, a melt index (I₂) in a range of from 2 to 6 g/10 minutes, a molecular weight distribution (M_w/M_n) in the range of from 2 to 3.5; and one or more additives selected from the group consisting of antistatic agents, color enhancers, dyes, lubricants, fillers, opacifiers, nucleators, processing aids, pigments, primary antioxidants, secondary antioxidants, processing aids, UV stabilizers, anti-blocks, slip agents, tackifiers, fire retardants, anti-microbial agents, odor reducer agents, anti-fungal agents, and combinations thereof."

Claim 1 of the first auxiliary request corresponded to granted claim 2.

In the second auxiliary request claim 1 was amended with respect to the first auxiliary request by adding the following expression at the end of the claim:

"wherein the α -olefin comonomer is selected from the group consisting of 1-hexene and 1-octene."

In the third auxiliary request claim 1 was amended with respect to the first auxiliary request by adding the following expression at the end of the claim:

"wherein said film is formed into tapes for use in artificial turf;
wherein the α -olefin comonomer is selected from the group consisting of 1-hexene and 1-octene."

The remaining claims of these requests and the claims of the fourth to nineteenth auxiliary requests are not relevant to the present decision.

IX. Appellant 1's submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They were essentially as follows:

(a) Main request (patent as granted)

(i) Inventive step

The subject-matter of granted claims 1 and 2 involved an inventive step over D1 as the closest prior art.

(b) First and second auxiliary requests

(i) Inventive step

The subject-matter of claim 1 of the first and second auxiliary requests involved an inventive step over D1 as the closest prior art.

(c) Third auxiliary request

(i) Admittance of objections

All of appellant 2's objections to the third auxiliary request were late-filed and should not be admitted into the proceedings.

(ii) Sufficiency of disclosure

The opposed patent complied with the requirements of sufficiency of disclosure.

X. Appellant 2's submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They were essentially as follows:

(a) Main request (patent as granted)

(i) Inventive step

The subject-matter of granted claims 1 and 2 did not involve an inventive step over D1 as the closest prior art.

(b) First and second auxiliary requests

(i) Inventive step

The subject-matter of claim 1 of the first and second auxiliary requests did not involve an inventive step over D1 as the closest prior art.

(c) Third auxiliary request

(i) Admittance of objections

The objections to the higher ranking requests applied *mutatis mutandis* to the third auxiliary request. They were therefore part of the appeal proceedings.

(ii) Sufficiency of disclosure

The opposed patent did not comply with the requirements of sufficiency of disclosure.

Reasons for the Decision

Main request (patent as granted)

1. Inventive step

1.1 Granted claim 1

1.1.1 Closest prior art

It was not disputed between the parties that D1 may be selected as the closest prior art for the subject-matter of granted claim 1 and the Board has no reason to depart from that view.

However the main point of disagreement between the parties was whether example 4 of D1 could be selected as a springboard for assessing inventive step.

(a) Appellant 1 held that example 4 was not a suitable starting point for the following reasons:

- Example 4 related to a LLDPE composition used in a blown film and not in a cast film (see D1, page 24, first paragraph).
- The properties of the film obtained therefrom were inferior with regard to dart impact strength, puncture and tear (see D1, Tables 10 and 10A) to those of the film derived from the composition of example 3.
- The optical properties of the film of example 4 were not known (contrary to the film derived from example 3). Therefore, example 4 was neither a realistic nor a promising springboard for assessing inventive step.
- In view of the objective of the present invention (the provision of a LLDPE composition for cast films with good optical and mechanical properties), it would be an impermissible hindsight to nevertheless choose the composition of example 4 (instead of example 3) as starting point.

(b) The Board cannot follow the line of argument of appellant 1 for the following reasons:

- It is not contested that the composition of example 4 is used in a blown film while the opposed patent relates primarily to cast films (see opposed patent, paragraph [0001]). However, D1 teaches that the composition disclosed therein

can be employed in a monolayer film or a multilayer film prepared by cast (see D1, page 16, lines 1-5). In the Board's view, this teaching in D1 implies that all compositions within the ambit of D1 are suitable for this purpose, even if they are actually used in a blown film in the examples of D1. Already for this reason, the LLDPE composition of example 4, which is a composition according to the invention disclosed in D1, is a possible starting point to evaluate inventive step. In other words, the fact that the composition of example 4 is used in a blown film does not make it unsuitable for use in a cast film (at least following the teaching of D1).

- Appellant 1 further argued, that the skilled person, wishing to provide a cast film with improved optical and mechanical properties, would select example 3 and not example 4 as springboard toward the present invention. In this respect, the Board does not dispute that some properties of the blown film of example 3 could be considered improved compared to the blown film of example 4. However, it is notorious that the properties of blown films differ considerably from the properties of cast films (cast films having in general better optical properties but a reduced puncture resistance compared to blown films). Hence the Board has no reason to believe that the skilled person would draw conclusions about cast films from the results obtained with blown films and exclude the composition of example 4 for that reason.

- The arguments of appellant 1 are mainly based on the subjective problem to be solved in the opposed patent: the provision of cast films with "excellent optical properties (clarity, haze, gloss), heat sealing properties, low taste & odor and low extractables, excellent abuse resistance properties" (see opposed patent, paragraph [0041]). In particular, appellant 1 assumes that improved properties have been achieved by using a composition according to present claim 1 compared to the composition of example 4 of D1. Whether the properties of the compositions according to claim 1 are improved or not (compared to the compositions of D1) is in principle to be dealt with when assessing the objective problem to be solved. However, for the Board, the relevant question in selecting an embodiment as the closest prior art is whether it is a realistic starting point towards the invention in the sense that it is related to the same or a similar purpose and there is some probability for a skilled person to arrive at the claimed subject-matter starting therefrom. The Board could agree with appellant 1 if it were clear that the composition of example 4 would be *prima facie* unsuited to fulfil the purpose of the claimed invention. However, as explained above, the Board has no objective reason to believe that this is the case.

For each of these reasons, the Board considers that example 4 is a possible starting point for the assessment of inventive step.

1.1.2 Distinguishing feature

It was not disputed between the parties that claim 1 differed from example 4 of D1 in that the melt index (I_2) of the composition is in a range of from 2 to 6 g/10 minutes (instead of 1.0 g/10 minutes for the composition of example 4).

The Board has no reason to depart from that view.

1.1.3 Technical effect

Appellant 1 stated that the objective problem to be solved should be formulated as the provision of an alternative composition with good optical and abuse-resistance properties.

In that respect, the Board agrees with appellant 2 that the effect of the melt index (I_2) on the properties of cast films cannot be derived from the examples of the opposed patent. Hence, it cannot be assumed that the properties of a cast film made from the composition of example 4 are similar, better or worse than those of cast films derived from a composition according to present claim 1.

In the absence of suitable comparative examples, the problem to be solved (over example 4 of D1) is seen as the provision of an alternative film forming composition.

1.1.4 Obviousness

Appellant 1 pointed out that none of the examples in D1 concerned a composition with a melt index I_2 as defined in claim 1. Moreover the range of melt indices disclosed in the general description of D1 was broad (from 0.1 to 1000 g/10 minutes on page 7 of D1). Hence

there would be no incentive for the skilled person wishing to provide an alternative composition with good optical and abuse-resistance properties to select a melt index between 2 and 6 g/10 minutes.

For the Board, the question whether the skilled person would reasonably consider a composition with a melt index between 2 and 6 g/10 minutes depends on the problem to be solved. As noted previously, the objective problem to be solved is merely the provision of an alternative to the composition of example 4. Hence the skilled person would have considered any alternative embodiment within the disclosure of D1. As pointed out by the parties, D1 (see page 7, lines 10-11) states that the melt index of the composition may be from 0.1 to 1000 g/10 minutes, for example 0.1 to 5 g/10 minutes. It is therefore an obvious alternative for a skilled person to arbitrarily select an ethylene-based polymer having a melt index between 2 and 6 g/10 minutes as defined in present claim 1.

During the oral proceedings, appellant 1 further argued that D1 would not teach how to adjust the melt index of example 4 of D1 while maintaining all the other properties within the ranges defined in present claim 1.

In that respect, as pointed out by appellant 2, the Board notes that the other properties of example 4 of D1 are not at the border of the ranges defined in present claim 1. As a matter of example the CDC of the LLDPE composition is 98.9 which is almost in the middle of the range defined in claim 1 (40 to 150). It is therefore not credible that the skilled person could not increase the melt index of the composition of

example 4 without maintaining the other properties within the ranges defined in claim 1.

For these reasons, the subject-matter of claim 1 does not involve an inventive step starting from example 4 of D1 as the closest embodiment.

1.2 Granted claim 2

Granted claim 2 is directed to a cast film consisting of a composition according to granted claim 1.

1.2.1 Appellant 1 held that it would be artificial for the skilled person to consider a composition used in a blown film as the starting point for the assessment of inventive step. Therefore D1 (and in particular all of its examples) would not be a realistic starting point for assessing inventive step (see letter of 10 February 2023, points 6. and 9.).

1.2.2 As noted in the context of claim 1, the compositions of D1 are considered to be suitable for use in a cast film (see page 16, lines 1-5). Hence, even if the composition of example 4 is explicitly used to produce a blown film, it remains suitable for use in a cast film. Therefore, as far as granted claim 2 is concerned, the Board has no reason to change the choice of the starting point.

However, in view of the fact that the composition of example 4 is not used in a cast film, the nature of the film is considered to be an additional distinguishing feature between granted claim 2 and example 4 of D1 (as compared to granted claim 1).

1.2.3 According to appellant 1, the problem to be solved should be formulated as the provision of an alternative ethylene based polymer film having good optical properties (gloss, haze, clarity) and good abuse-resistance properties.

1.2.4 As explained in the context of granted claim 1, the opposed patent does not allow to draw any conclusion as to the effect of the first distinguishing feature (i.e. the melt index I_2). Nor has it been argued that the use of the composition according to claim 1 in a cast film instead of a blown film (second distinguishing feature) produces any technical effect going beyond the notorious differences between cast and blown films.

Therefore, in the absence of suitable comparative examples, the problem to be solved is regarded as the provision of an alternative film.

1.2.5 As explained previously, the arbitrary choice of a melt index I_2 between 2 and 6 g/10 minutes is an obvious alternative for the skilled person. Moreover D1 teaches that the inventive ethylene-based polymer compositions may be employed in films prepared by cast (see D1, page 16, lines 1-5). It is therefore an obvious option for a skilled person wishing to provide an alternative to the blown film of example 4 to use the material of this example in a cast film.

For these reasons, the subject-matter of granted claim 2 does not involve an inventive step starting from example 4 of D1 as the closest embodiment.

First auxiliary request

2. Claim 1 of the first auxiliary request corresponds to granted claim 2.

Therefore, the conclusion of lack of inventive step for the subject-matter of granted claim 2 equally applies to the subject-matter of claim 1 of the first auxiliary request.

Second auxiliary request

3. Claim 1 of the second auxiliary request differs from granted claim 2 in that the α -olefin comonomer is selected from the group consisting of 1-hexene and 1-octene.

The parties confirmed at the oral proceedings that their arguments concerning inventive step of granted claim 2 applied *mutatis mutandis* to claim 1 of the second auxiliary request.

On that basis and in view of the fact that the comonomer used in the examples of D1 is 1-octene (see page 19, lines 21 and 27), the above reasoning and the resulting conclusion concerning the lack of inventive step for the subject-matter of granted claim 2 equally applies to the subject-matter of claim 1 of the second auxiliary request.

Third auxiliary request

4. Claim 1 of the third auxiliary request differs from granted claim 2 in that

the film is formed into tapes for use in artificial turf and

the α -olefin comonomer is selected from the group consisting of 1-hexene and 1-octene.

5. Admittance of objections against the third auxiliary request
 - 5.1 The third auxiliary request was filed by appellant 1 with their rejoinder to the statement of grounds of appeal.
 - 5.2 In the communication under Article 15(1) RPBA 2020, the Board indicated that no objections appeared to have been raised against the third auxiliary request.
 - 5.3 At the oral proceedings, appellant 2 argued that the objections raised against the main request under sufficiency of disclosure, novelty and inventive step equally applied to the third auxiliary request.
 - 5.4 Appellant 1 submitted that the objections to the third auxiliary request were raised for the first time during the oral proceedings before the Board. Hence, these objections should not be admitted since no reason was given for raising them at this stage of the appeal proceedings.
 - 5.5 Article 13(2) RPBA 2020 provides that amendments to a party's case made after notification of oral proceedings are not to be taken into account unless exceptional circumstances, justified by cogent reasons, exist.

The Board concurs with the approach taken in several decisions (T 247/20, point 1.3 of the Reasons; T 2988/18, point 1.2 of the Reasons; T 2920/18, point 3.4 of the Reasons), according to which the examination

under Article 13(2) RPBA 2020 is carried out in two steps. The question to be answered in the first step is whether the submission objected to (in this case the specific objections) is an amendment to a party's appeal case. If that question is answered in the negative, then the Board has no discretion not to take the submission into account. If, however, that question is answered in the affirmative, then the Board needs to decide whether there are exceptional circumstances, justified by cogent reasons (second step).

- 5.6 The first question to be answered by the Board is therefore whether the objections against the third auxiliary request constitute an amendment of appellant 2's case.

An amendment to a party's appeal case under Article 13 RPBA 2020 is in analogy with Article 12(4) RPBA 2020 (with reference to Article 12(2) RPBA 2020) a submission which is not directed to the requests, facts, objections, arguments and evidence relied on by the party in its statement of grounds of appeal or its reply. In other words: it goes beyond the framework established therein (see T 247/20, point 1.3 of the Reasons; see also Case Law of the Boards of Appeal, 10th edition 2022, V.A.4.2.2 m)).

- 5.6.1 At the oral proceedings, appellant 2 merely argued that the objections raised against the main request under sufficiency of disclosure, novelty and inventive step equally applied to the third auxiliary request. Therefore, said objections should not be regarded as an amendment of appellant 2's case.
- 5.6.2 With regard to the question of sufficiency of disclosure, the Board agrees that the initial objection

raised by appellant 2 under point 4 of their statement of grounds of appeal can be fully applied to the third auxiliary request. In view of the fact that appellant 2 only referred to the written objection during the oral proceedings, the Board concludes that the objection of insufficient disclosure is not an amendment of appellant 2's case. Consequently the Board has no discretion not to take this objection into account.

5.6.3 However, with respect to novelty and inventive step, the situation is different. Claim 1 of the third auxiliary request is limited in that the film is formed into tapes for use in artificial turf. This additional feature was present in an embodiment of granted claim 9. However, in their written submissions, appellant 2 did not address granted claim 9, nor did they explain why the combination of features of present claim 1 would be known or obvious in view of the cited prior art.

5.6.4 Hence, the present objections concerning novelty and inventive step raised by appellant 2 at the oral proceedings cannot be inferred from the written submissions. Nor is there any reason to regard these new objections as a mere development of the original objections to the main request or the first auxiliary request. Consequently the objections of lack of novelty and inventive step against the third auxiliary request constitute a change of the factual and legal framework of the appeal and are therefore an amendment of appellant 2's case within the meaning of Article 13(2) RPBA 2020.

5.7 The second question to be answered is whether there are exceptional circumstances, supported by cogent reasons, which justify the admittance of the novelty and

inventive step objections against present claim 1 into the appeal proceedings.

5.8 Appellant 2 has not provided any explanation for objecting to the third auxiliary request with regard to novelty and inventive step at such a late stage of the proceedings, nor does the Board discern any.

5.9 In the absence of any exceptional circumstances, the present objections of lack of novelty and inventive step are not taken into account (Article 13(2) RPBA 2020).

6. Sufficiency of disclosure

6.1 Appellant 2 is of the opinion that the method to determine the zero shear viscosity ratio (ZSVR) is insufficiently disclosed in the opposed patent. In particular, the determination of the ZSVR requires the measurement of the weight average molecular weight (M_w) by gel permeation chromatography (GPC). However in the absence of a calibration method for the GPC instrument, the ZSVR can be overestimated by 50%.

6.2 Appellant 1 considers that the description of the opposed patent provides sufficient details to allow the measurement of the ZSVR.

6.3 The Board agrees with appellant 1. Indeed, paragraphs [0064] and [0065] of the opposed patent explain how the ZSVR can be derived from the M_w (measured by GPC) of the branched polyethylene and paragraph [0055] provides details about the GPC calibration. Accordingly, the Board cannot identify any deficiency in the disclosure of the method used to determine the ZSVR parameter.

6.4 Therefore, the arguments put forward by appellant 2 do not demonstrate a lack of sufficient disclosure.

7. As all of the objections of appellant 2 against the third auxiliary request fail or are not admitted into the proceedings, the patent is to be maintained in amended form on the basis of this request.

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 in amended form on the basis of claim 1 of the third auxiliary request and after any necessary consequential amendments of the description.

The Registrar:

The Chairman:



N. Schneider

D. Semino

Decision electronically authenticated