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**Datasheet for the decision
of 9 March 2018**

Case Number: T 1411/16 - 3.3.05

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B05D1/28, B05D3/06, B05D5/10

Language of the proceedings: EN

Title of invention:
PROCESS FOR PREPARING AN ADHESIVE USING A PLANETARY ROLLER
EXTRUDER

Patent Proprietor:
Intertape Polymer Corp.

Opponent:
Entex Rust & Mitschke GmbH

Headword:
Planetary roller extruder/Intertape

Relevant legal provisions:
EPC Art. 56

Keyword:

Admissibility of appeal - (yes)

Inventive step (main request) - obvious alternative - (first
auxiliary request) - non-obvious alternative

Decisions cited:

Catchword:



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Case Number: T 1411/16 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 9 March 2018

Appellant: Entex Rust & Mitschke GmbH
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Respondent: Intertape Polymer Corp.
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 31 May 2016
rejecting the opposition filed against European
patent No. 1687100 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman E. Bendl
Members: J.-M. Schwaller
O. Loizou

Summary of Facts and Submissions

I. The present appeal lies from the decision of the opposition division to reject the opposition against European patent No. 1 687 100, with independent claim 1 as granted reading:

"1. A process for preparing an adhesive, the process comprising the steps of:

a.) introducing primary raw materials comprising a non-thermoplastic elastomer into a feeding section (12) of a planetary roller extruder (10);

b.) conveying the primary raw materials from the feeding section (12) to a compounding section (14) of the planetary roller extruder (10);

c.) mixing the primary raw materials in the compounding section (14), wherein the compounding section (14) comprises a main spindle (26) surrounded by and intermeshed with a plurality of planetary spindles (28,30), wherein at least one of the planetary spindles (28,30) is a double transversal mixing spindle (28) comprising a plurality of back-cut helical flights (28), and mastication of the non-thermoplastic elastomer occurs therein;

d.) producing a homogeneous adhesive composition; and

e.) applying the adhesive composition to a web-form material."

II. With the grounds of appeal, the opponent (the "appellant") contested the decision and argued inter alia that the claimed subject-matter lacked an inventive step over A14.1 (DE 199 39 077 A1). It also filed new documents and annexes.

III. With its response to the grounds of appeal, the patentee (the "respondent") requested that neither the

appeal nor the new documents and annexes filed with the grounds of appeal be admitted. It maintained the claims as granted as its main request and submitted two auxiliary requests. Regarding inventive step, it contested the appellant's arguments.

Claim 1 of auxiliary request 1 is identical to claim 1 of the main request, with the addition of the following feature at the end:

"wherein the elastomer is masticated such that M_w is reduced to less than 1,000,000 as measured by GPC."

- IV. The board expressed its preliminary opinion that the appeal appeared to be admissible, but the newly filed documents and annexes did not. Furthermore, the subject-matter of claim 1 as granted was novel but appeared to lack inventive step over the disclosure of document A14.1.
- V. At the oral proceedings, the parties did not present any further arguments regarding the admissibility of the appeal. The appellant explicitly stated that it had no novelty objection and that it was withdrawing its objection under Article 83 EPC. Inventive step was discussed, in particular in view of the disclosure of documents A14.1, A41 (Case 3:10-cv-00076-RLY-WGH of the US District Court Southern District of Indiana Evansville Division (Berry Plastics Corporation vs. Intertape Polymer Corporation) regarding obviousness of the US counterpart of the contested patent) and A5.6 (Presentation by M. W. Batton: "Gummi - der Maßgeschneiderte Werkstoff, Funktion und Wirkungsweise des Planetwalzenextruders in der Aufbereitung").

- VI. The arguments of the appellant, as far as relevant to the present decision, were as follows:
- The appeal was admissible.
 - The documents submitted with the grounds of appeal were to be admitted, as they further supported the argumentation presented by the appellant.
 - Starting from D14.1 as the closest prior art, the claimed subject-matter was rendered obvious.

The arguments of the respondent, as far as relevant to the present decision, were as follows:

- The appeal was inadmissible, as no reasons were presented as to why the opposition division's decision was wrong.
- Late-filed documents were not to be admitted.
- The claimed subject-matter was inventive.

- VII. After closure of the debate, the chairman established the parties' requests to be as follows:

The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed (main request) and the patent upheld as granted or, alternatively, in amended form on the basis of one of the sets of claims according to auxiliary request I or II filed with letter dated 27 January 2017.

Reasons for the Decision

1. Admissibility of the appeal

The respondent contested the admissibility of the appeal because the grounds of appeal "apparently contain no link between the specific reasoning provided

by the opposition division in the decision and any reasons why the opposition division was incorrect".

The board disagrees with this statement, because the appellant contested, in particular in point 48.1.1.1 of the grounds of appeal, the conclusions of the opposition division with respect to the feature "mastication": "Die Einspruchsentscheidung ist hinsichtlich des Inhaltes des Streitpatentes zur Mastikation außerhalb des Planetwalzenextruders nicht nachvollziehbar. In der Einspruchsentscheidung findet sich die Aussage, daß ..." (translation by the board: "The opposition division's decision concerning the patent in suit's content on mastication outside the planetary roller extruder cannot be followed. In the decision under appeal can be found the statement that ..."), followed by reasons. So at least this part of its grounds of appeal contains a reasoning why the appellant considers the opposition division's decision to be wrong. Therefore the board finds the appeal to be admissible.

2. Admissibility of the new documents and annexes filed with the grounds of appeal

These documents and annexes were intended to clarify the feature "mastication" in the claimed context. They are not, however, prima facie more relevant than the documents filed during the opposition proceedings, so the board does not see any reason to admit them into the appeal proceedings, as already announced in its preliminary opinion of 11 December 2017 (item 2.).

3. Patent as granted (main request) - inventive step

Applying the problem/solution approach, the board came to the conclusion that the subject-matter of claim 1 of this request does not involve an inventive step for the following reasons:

- 3.1 A14.1, that the parties acknowledged as representing the closest state of the art, discloses (claim 1) a process for the continuous solvent-free and mastication-free production of self-adhesive compositions based on non-thermoplastic elastomers in a continuously operating planetary roller extruder (hereinafter "PRE") having a filling section and a compounding section, comprising
- a) feeding the solid components - such as elastomers and resins - into the filling section of the apparatus,
 - b) transferring the solid components to the compounding section,
 - c) adding the liquid components - such as plasticisers, crosslinking agents and further adhesive resins - to the compounding section,
 - d) preparing a homogeneous self-adhesive composition in the compounding section, and
 - e) discharging the self-adhesive composition.

In example 3, the thus prepared self-adhesive composition is then coated on a web-form material.

- 3.2 As to the problem underlying the alleged invention, the respondent conceded that it consisted in the provision of a process for producing a non-thermoplastic elastomer-based adhesive having a low viscosity. The board observes that this problem can be derived from paragraph [0035] of the contested patent; it is

identical to the one identified by the opposition division (see item 5.7 of the impugned decision).

3.3 As a solution to this problem, the contested patent proposes the process according to claim 1 at issue, which is in particular characterised in that mastication of the non-thermoplastic elastomer occurs and in that at least one of the planetary spindles in the PRE is a double transversal mixing spindle comprising a plurality of back-cut helical flights.

3.4 As to the question whether the problem identified in point 3.2 above has actually been solved by the proposed solution, the following is noted.

3.4.1 Mr Tynan - one of the inventors in the contested patent - testified during proceedings before a US court (see A41, page 19, footnote) that it was impossible not to masticate rubber on a PRE identical with the one disclosed in A14.1.

Respondent's counsel concluded similarly (A41, page 19, line 10), stating that some degree of mastication "has to occur" in said PRE.

3.4.2 The board notes that the above statements made before the US court are confirmed by A14.1 itself, which discloses (see column 14, lines 45 to 47) that some reduction of molecular weight occurs in the PRE. In the absence of a more precise definition of the processing condition, it is the board's view that no distinction can be made between degradation caused by physical processing and a low intensity mastication process.

- 3.4.3 In response thereto, the respondent explained that the extent of mastication was more important in the process according to the patent than in A14.1.

Notwithstanding, the board notes that the extent of mastication is not quantifiable from the currently claimed subject-matter, with the consequence that the feature "mastication of the non-thermoplastic elastomer occurs" cannot be held as distinguishing the subject-matter of claim 1 as granted from A14.1, and therefore as contributing to the solution of the problem.

- 3.4.4 The board is furthermore not convinced that the implementation of at least one double transversal mixing spindle comprising a plurality of back-cut helical flights in the PRE necessarily leads - as alleged by the respondent - to a reduction in viscosity, because first of all there is no support for this allegation in the contested patent. Furthermore, it is commonly known that viscosity reduction depends very much on processing conditions, such as those exemplified in the examples of the patent in suit (temperatures, residence time, screw speed, etc.). However, such parameters, which could lead to a distinction from A14.1, are not reflected by the wording of claim 1 at issue. Furthermore, as argued by the appellant, the skilled person knows that viscosity can be reduced easily by other measures, e.g. by increasing the residence time in the PRE or by increasing the temperature in the PRE or - as disclosed in paragraph [0038] of the patent - by introducing a substantial quantity of solvent, in amounts of up to 50%, into the compounding section of the PRE.

- 3.4.5 As to the effect of the double transversal mixing spindles, the patent merely discloses (paragraph

[0035]) that they enhance the degree of mastication (which is again dependent upon the processing conditions), not that they reduce viscosity.

3.4.6 As there is, moreover, no disclosure of any single viscosity value in the whole patent, including the four examples, the question arises whether there is an improvement in terms of viscosity with respect to the process disclosed in A14.1, but no information in this respect arises from the patent.

3.4.7 It follows from the above considerations that the problem allegedly underlying the invention, namely reducing the viscosity of the non-thermoplastic elastomer-based adhesive, has not credibly been solved by the proposed solution, so that the problem is to be reformulated in the provision of an **alternative process** for producing a non-thermoplastic elastomer-based adhesive.

3.5 As to the obviousness of the claimed subject-matter over the closest prior art A14.1, it has to be determined whether the proposed solution was obvious in the light of the state of the art.

The board notes in this respect that the contested patent (see page 4, lines 45 to 46) itself acknowledges that "[p]lanetary roller extruders having double transversalspindles [sic] 28" were commercially available at the filing date of the patent. Figure 2 reproduced below illustrates said double transversal spindle 28 with its back-cut helical flights 32.

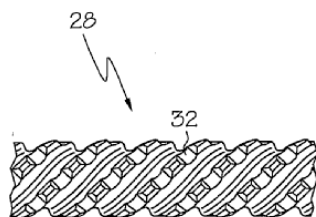


FIG. 2

As explained in paragraph [0017], the double transversal spindle 28 is also known as a back-cut spindle or Noppenspindel (as disclosed e.g. in document A5.6).

In the board's view, for the skilled person seeking an alternative to the process according to A14.1 it is a trivial matter to substitute this commercially available alternative PRE for the one known from A14.1, and so arrive at the subject-matter of claim 1 as granted, because the PRE including the double transversal spindle having back-cut helical flights is merely one of a number of straightforward possibilities from which the skilled person would select without inventive skill, all PREs being known as working on a similar mixing principle. In the present case, the skilled person is, moreover, aware that the presence of back-cut helical flights might give rise to some trivial advantages, for instance a longer residence time for the material to be treated, since there are holes (back-cuts) in the spindle.

The substitution in the process for preparing an adhesive of the PRE by another PRE is therefore - in the absence of any particular unforeseeable effect on the final adhesive - within the competence of a person skilled in the art.

The subject-matter of claim 1 as granted therefore lacks inventive step under Article 56 EPC.

4. First auxiliary request - amendments

Claim 1 of this request differs from claim 1 as granted in that the elastomer is masticated such that "***M_w is reduced to less than 1,000,000 as measured by GPC.***"

This amendment is based on claim 14 as filed, and therefore meets the requirements of Article 123(2) EPC.

By the same token, amended claim 1 contains all the features of granted claim 1. Therefore, the requirements of Article 123(3) EPC are met as well.

5. First auxiliary request - inventive step

5.1 For the board, the above additional feature provides an inventive contribution to the subject-matter of claim 1 at issue, since none of the documents cited in the proceedings discloses that it is desirable to achieve such a reduction of the molecular weight with a PRE, let alone with a PRE comprising double transversal spindles having back-cut helical flights.

5.2 As to the alleged obvious combination starting from the closest state of the art A14.1 in combination with A5.6, the board notes the following:

5.2.1 A14.1 (see in particular claim 1) definitely teaches away from achieving such a molecular weight reduction, since the process for preparing an adhesive according to this document requires PRE equipment in which (almost) no mastication occurs.

A14.1 in fact teaches (A14.1, column 3, line 33 to column 4, line 4; column 7, lines 35 to 39) to follow an approach diametral to the one described in the documents cited as background art, which disclose a reduction in the molecular weight of the elastomer to less than 1000000, i.e. A14.1 clearly demands that such a reduction in molecular weight should in any case be avoided.

- 5.2.2 From the other documents cited in the appeal procedure, the appellant retained A5.6 and argued that it lead to the claimed subject-matter.

The board cannot accept this conclusion because even assuming, in favour of the appellant, that A5.6 were publicly available before the filing date of the patent, this document merely discloses that the Noppenspindel has a special design "for improved rubber processing" and that it provides the advantages of a longer residence time and good mastication, thus resulting in an optimal Mooney viscosity and a very good filler dispersion.

None of these teachings of A5.6, however, suggests or discloses that mastication with said Noppenspindel - i.e. a double transversal spindle having back-cut helical flights within the meaning of claim 1 at issue - should be carried out to such an extent that the molecular weight of the non-thermoplastic elastomer, such as rubber, is reduced to less than 1000000.

- 5.2.3 The appellant alternatively argued that the feature according to which the molecular weight is reduced to less than 1000000 would have no limiting effect on the claimed subject-matter if the starting material were a

rubber having a molecular weight of less than 1000000.

The board is not convinced by this argument since A14.1 (column 2, lines 34 and 35) explicitly discloses that rubber contains components having extremely high molecular weight (with $M_w \geq 1$ million). Moreover, claim 1 at issue requires that M_w be **reduced** to less than 1000000, which implies that the starting material necessarily has a molecular weight (substantially) higher than 1000000, so implicitly excluding the category of rubbers envisaged by the appellant.

- 5.3 It follows that, having regard to the state of the art, the subject-matter of claim 1 at issue is not obvious to the person skilled in the art, and thus involves an inventive step within the meaning of Article 56 EPC.

The same conclusion applies to claims 2 to 18, which depend on claim 1 at issue.

6. Since the claims of the first auxiliary request meet the requirements of the EPC, there is no need to consider the lower-ranking 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 the claims of auxiliary request I as filed with letter dated 27 January 2017 and a description to be adapted thereto.

The Registrar:

The Chairman:



C. Vodz

E. Bendl

Decision electronically authenticated