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Datasheet for the decision of 6 November 2018

Case Number: T 2035/15 - 3.3.03

Application Number: 98913369.9

Publication Number: 0977812

IPC: C08L95/00, C08K3/32, C08K9/08

Language of the proceedings: EN

Title of invention:
ASPHALT COMPOSITIONS AND METHODS OF PREPARATION THEREOF

Patent Proprietor:
Ergon, Inc.

Opponent:
BK Giulini GmbH

Relevant legal provisions:
RPBA Art. 12(4)
EPC Art. 54, 56

Keyword:
Documents submitted with the statement of grounds of appeal - admitted
Novelty - (yes)
Inventive step (no) - obvious measures (all requests)

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Case Number: T 2035/15 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 6 November 2018

Appellant: (Opponent)	BK Giulini GmbH Giulini Str. 2 67065 Ludwigshafen (DE)
Representative:	Kern, Hedwig Reitstötter Kinzebach & Partner Patentanwälte Im Zollhof 1 67061 Ludwigshafen (DE)
Respondent: (Patent Proprietor)	Ergon, Inc. 2829 Lakeland Drive Jackson, MS 39215 (US)
Representative:	Uexküll & Stolberg Partnerschaft von Patent- und Rechtsanwälten mbB Beselerstraße 4 22607 Hamburg (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 12 August 2015 rejecting the opposition filed against European patent No. 0977812 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	D. Semino
Members:	F. Rousseau
	R. Cramer

Summary of Facts and Submissions

I. The appeal lies against the decision by the opposition division, posted on 12 August 2015, rejecting the opposition against European patent No. 0 977 812, which claims a priority date of 31 March 1997 and whose claim 1 read as follows:

"1. A method of preparing a polymer modified asphalt comprising:
- providing a source of a neat asphalt; heating said neat asphalt;
- providing a source of a phosphoric acid;
- adding said acid to said neat asphalt after the step of heating said neat asphalt; providing a source of a polymer;
- adding said polymer to said neat asphalt to form a blend after the step of adding said acid to said neat asphalt, wherein said blend is a concentrate that includes from 10 wt.% to 20 wt.% of said polymer;
- providing a source of a dilution asphalt;
- adding said blend to said dilution asphalt to form a diluted product; and
- mixing said diluted product."

II. The contested decision was taken having regard in particular to the following prior art document:

D1/1: WO 95/28446 A1.

III. In the contested decision the opposition division held inter alia that the methods disclosed in the relevant example of D1/1 described neither a concentrate comprising the amount of polymer defined in claim 1 as granted nor a dilution step of the concentrate with a

dilution asphalt. Novelty was therefore acknowledged. As to inventive step, it was a matter of consensus that the closest prior art was represented by D1/1 and that having regard to that document the technical problem solved by the claimed methods was the provision of alternative methods for the preparation of bitumen compositions that were compliant with the SUPERPAVE requirements. There was however no hint in the prior art to prepare a masterbatch having a polymer concentration in the range of 10 to 20 wt.% so that the methods defined in the granted claims which comprised that step were inventive.

IV. An appeal against that decision was lodged by the opponent (hereafter appellant), the statement of grounds of appeal citing inter alia the following documents, which were not part of the opposition proceedings:

D7: DE 2 255 173 A1
D9: Abstract of "Properties of synthetic polymer modified bitumen concentrates and the effects of dilution by bitumen for application as binders", A. Remtulla et al, ARRB Conference, 1986 (hhtp://arrbknowledge.com, Accession Mumber: 01427406)
D10: Technical Paper T-133: "Heating, Mixing and Storing Modified Asphalt", Jim May et al, Heatec, Inc., 1996.

V. The patent proprietor (respondent) maintained the patent as granted as main request and submitted with its rejoinder (letter of 2 May 2016) three auxiliary requests whose claims 1 contained the following amendments:

First auxiliary request

In comparison to claim 1 of the main request, the wording ", wherein said step of adding said acid includes adding said acid in an amount of 0.1% to 1.0% by weight of said polymer modified asphalt" had been inserted in claim 1 between the features "after the step of heating said neat asphalt" and "; providing a source of a polymer".

Second auxiliary request

In comparison to claim 1 of the main request, the wording ", wherein said step of adding said acid includes adding a source of a polyphosphoric acid and said acid is added in an amount of 0.4% by weight of said polymer modified asphalt" had been inserted in claim 1 between the features "after the step of heating said neat asphalt" and "; providing a source of a polymer".

Third auxiliary request

In comparison to claim 1 of the second auxiliary request, claim 1 of the third auxiliary request contained defined at the end of the claim the additional step of "adding an aggregate to said diluted product".

VI. Following the Board's communication sent in preparation of the oral proceedings the respondent announced with letter of 25 October 2018 that they would not attend the oral proceedings. Oral proceedings were held on 6 November 2018 in their announced absence (Rule 115(2) EPC and Article 15(3) RPBA).

VII. As far as relevant to the present decision, the appellant's arguments can be summarised as follows:

Admittance of D7, D9 and D10

(a) D7, D9 and D10 had been submitted in reaction to the finding of the opposition division that the steps of forming a masterbatch of asphalt and copolymer and subsequently diluting said concentrate with asphalt were measures not known in the art. These documents should therefore be admitted into the proceedings.

Main request - novelty

(b) The skilled person would read the process described in example 2 of D1/1 in the light of the common general knowledge in the art and accordingly understand that a masterbatch of asphalt and polymer could be prepared, which step had to be followed by a dilution step. Example 2 of D1/1 therefore anticipated granted claim 1.

Main request - inventive step

(c) If novelty was acknowledged, the method described in example 2 of D1/1 constituted the closest prior art, from which the method of claim 1 only differed in the preparation of an intermediate masterbatch and the additional subsequent use of a dilution step with an asphalt. The problem solved over the closest prior art by the method of granted claim 1 was the one identified by the opposition division, namely the provision of an alternative method for the preparation of asphalt compositions that were compliant with the SUPERPAVE requirements. The

preparation of a masterbatch, which inevitably had to be followed by a dilution step with asphalt was well known in the art, as shown in D1/1 itself (page 15, lines 1-20), D7 (page 6, lines 13-24), D9 (abstract) and D10 (pages 7 and 8, Figures 7 to 9; page 9, left-hand column, last paragraph; page 9, middle column and Figure 8). This technique was in addition advantageous having regard to the necessary quality control and handling of the modified asphalt compositions. In addition, the properties of the final product did not depend on the production of a concentrate and a subsequent dilution step. Accordingly, it would have been obvious for the skilled person seeking to provide an alternative method for the preparation of asphalt compositions compliant with the SUPERPAVE requirements to use a masterbatch and a subsequent dilution step arriving thereby at the method of claim 1.

(d) Claim 1 of the main request lacked therefore an inventive step.

Auxiliary requests

(e) The additional features contained in the auxiliary requests did not result in any technical effect and were known in the art, reference being made to D1/1 for the amount of phosphoric acid and the use of polyphosphoric acid (passage from page 3, line 26 to page 4, line 2). Accordingly, the additional features contained in the auxiliary requests did not contribute to an inventive step.

VIII. As far as relevant to the present decision, the respondent's arguments can be summarised as follows:

Admittance of D7, D9 and D10

(a) D7, D9 and D10 did not form part of the opposition proceedings and were for the first time relied upon in appeal proceedings. In D7 no heating step was taught or suggested for the preparation of the masterbatch, resulting in the preparation of granules or chips, whereas the formation of such granules or chips could be avoided with the method according to the patent. Accordingly, the subject-matter of the patent in suit differed from that of D7 not only in the order of process steps, but also in its step of heating the neat asphalt before said asphalt was mixed with an acid or a polymer. As a consequence, the method according to the patent allowed to obtain an asphalt composition which contained a phosphoric acid and a reduced amount of polymer additive in comparison to D7. Hence, the methods according to the patent in suit were improved compared to the process according to D7. Moreover, D1/1 taught polymer-modified asphalts having a final polymer concentration of 0,5 to 5 wt.%, preferably between 0,7 and 3 wt.% (page 5, lines 15-20). Thus, the skilled person starting from D1/1 would not have modified the process disclosed therein by using steps employed in D7 which led to a substantial higher amount of polymer in order to be useful in road construction. Hence, D7 did not provide any incentive to modify the process according to D1/1 and was not immediately relevant when assessing patentability.

(b) D9 did not teach or suggest the claimed subject-matter and it was not apparent to which extent that document was relevant to the assessment of the patentability of the present requests. D10 also did not appear to be prima facie relevant. In addition, it was a technical paper written by affiliates of a company which could not automatically be assumed to have been made available to the public prior to the priority date.

(c) Accordingly, D7, D9 and D10 were not prima facie relevant and should not be admitted into the proceedings.

Main request - novelty

(d) The method of granted claim 1 differed from that described in example 2 of D1/1 at least in that a concentrate blend of polymer and neat asphalt comprising from 10 to 20 wt.% of said polymer was prepared, whereas in example 2 of D1/1 the blend comprised only about 3,5 wt.% of polymer, and in that said blend was subsequently added to a dilution asphalt. Novelty over D1/1 should be acknowledged, since this document did not disclose the formation of such concentrate blend and a subsequent dilution step.

Main request - inventive step

(e) The appellant had not provided evidence that it was common general knowledge in the present field to prepare a masterbatch of polymer and asphalt. Already for this reason, it had not been shown that the subject-matter of the granted claims was obvious in view of D1/1 and the common general

knowledge. The dilution step disclosed in D1/1, on page 12, lines 10 to 16 and in the first paragraph of page 15 was only taught in respect of the compositions of the invention, but not in respect of example 2 of that document, which was a "control" example, not in accordance with the invention of D1/1. Accordingly, the skilled person would not have combined the method in accordance with example 2 of D1/1 with the general teaching of that document. In addition, a hydrocarbon oil was used for the preparation of a concentrated polymer master solution, whereas the claims of the patent in suit required the provision of a concentrate of the polymer in asphalt. In addition, D1/1 did not suggest an intermediate blend including 10 to 20 wt.% of polymer in asphalt.

(f) Consequently, starting from D1/1 it was not obvious to first increase the polymer concentration from 3,5 wt.% to 10 to 20 wt.% and then dilute this masterbatch to predictably provide a method for the preparation of SUPERPAVE-compliant polymer-modified asphalt compositions.

(g) Concerning D7, for the reasons indicated in relation to the admittance of that document, D7 did not provide any incentive to modify the process according to D1/1 so as to arrive at the claimed subject-matter. Regarding D10, the skilled person would not have modified example 2 of D1/1 by using any kind of masterbatch technology, because example 2 was not an example according to the invention of D1/1. Even if he had considered doing so, he would have selected the masterbatch solution technology described in D1/1, i.e. dissolving the polymer in hydrocarbon oil, because that technique

required less demanding blending conditions (page 12, lines 17 to 25). In contrast the masterbatch technology according to D10 did not only require higher temperatures and longer times, as well as the use of a grinding mill including a circulation system, but also provided a more limited batch size. Accordingly, the skilled person would have been prompted to use the less demanding technique described in D1/1.

(h) An inventive step was therefore to be acknowledged for the methods defined in the granted patent.

Auxiliary requests

(i) The arguments submitted for the main request equally applied to the auxiliary requests, which contained further distinguishing features over document D1/1, namely the requirement to add the phosphoric acid to the asphalt in an amount of from 0,1 to 1,0 wt.% by weight of the polymer modified asphalt for the first auxiliary request, the requirement to add a source of a polyphosphoric acid in an amount of 0,4 wt.% by weight of the polymer modified asphalt for the second auxiliary request and the requirement to add an aggregate to the diluted product in the third auxiliary request.

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

X. The respondent requested that the appeal be dismissed, or alternatively that the decision under appeal be set aside and the patent be maintained in amended form according to any of the first to third auxiliary

requests, all filed with the reply to the statement of grounds of appeal. It further requested that documents D4 to D10 not be admitted into the proceedings.

Reasons for the Decision

Admittance of documents D7, D9 and D10

1. The appellant cited in the statement setting out the grounds of appeal documents D4 to D10 in addition to the documents cited in the opposition proceedings. However, in the argumentation it was made use only of D7, D9 and D10. The Board therefore needs to decide only on the admittance of D7, D9 and D10 into the proceedings. The admittance of these documents submitted with the statement setting out the grounds of appeal is left to the power of the Board (Article 12(4) RPBA). According to the reasons for the contested decision, an inventive step was acknowledged, since the prior art did not suggest the steps of forming a concentrate (masterbatch) and the subsequent step of diluting said concentrate with asphalt. This argument, however, was raised for the first time during the oral proceedings before the opposition division, so that the filing of D7, D9 and D10 represents a timely and appropriate submission in response to that argument. Accordingly, the Board concludes that there is no reason to hold those documents inadmissible pursuant to Article 12(4) RPBA.

Novelty over D1/1

2. D1/1 as the patent in suit relates to the preparation of a polymer modified asphalt (claim 1). It describes in control example 2 a method wherein a neat asphalt is heated and then treated by addition first of phosphoric

acid and then of a polymer to form a blend comprising about 3,5 wt.% of polymer (page 16, lines 19 to 26 together with lines 4 to 18 in view of the reference to example 1).

2.1 The appellant considers that control example 2 provides an implicit disclosure of the subject-matter of claim 1 of the patent in suit, as the skilled person would understand that the masterbatch technology and the inevitable subsequent dilution step associated with it can be applied to the method described in control example 2. There is, however, no disclosure either explicit, or implicit, for that control example that a concentrate should be first obtained, let alone with a content of 10 to 20 wt.% of polymer, followed by a dilution step so as to lead to a blend comprising 3,5 wt.% of polymer. It is reminded that the term "implicit disclosure" relates solely to matter which is not explicitly mentioned, but is an unambiguous consequence of what is explicitly mentioned (Case Law of the Boards of Appeal, 8th edition, 2016, I.C.4.3, first paragraph). Such an explicit disclosure in D1/1 from which the alleged implicit disclosure would be inferred unequivocally was not indicated by the appellant and is not apparent to the Board. The question of whether the skilled person would understand that a masterbatch can be preliminary prepared is in the absence of a corresponding disclosure concerning that control example 2 merely a question of obviousness, which is not relevant to the assessment of what is implied by the disclosure of control example 2 of D1/1.

2.2 On that basis, the objection by the appellant that the subject-matter of claim 1 of the granted patent lacks novelty over D1/1 fails to convince.

Inventive step

3. Closest prior art

3.1 The patent in suit concerns in accordance with its claim 1 a method of preparing a polymer modified asphalt, wherein a neat asphalt is treated with a source of a phosphoric acid, before incorporating a polymer, so as to obtain a polymer modified asphalt. D1/1 as indicated in above section 2 discloses such a preparation method with control example 2. It is a matter of consensus that this method represents a suitable starting point for assessing inventive step of the method of granted claim 1. The Board is therefore satisfied that the method described in control example 2 of D1/1 can be taken as the closest prior art.

3.2 Having regard to the assessment of novelty in above section 2.1 the method in accordance with granted claim 1 differs from the closest prior art in that the addition of polymer results in an asphalt/polymer concentrate comprising 10 to 20 wt.% polymer and in that in a subsequent step a dilution asphalt is added and mixed with said concentrate.

4. Problem successfully solved

The finding of the opposition division that the technical problem solved by the methods defined in the granted patent was the provision of further methods for the preparation of asphalt compositions that were compliant with the SUPERPAVE requirements was not disputed by the parties. In the absence of any indication to the contrary, the Board is therefore satisfied that the problem successfully solved by the

method of granted claim 1 over the closest prior art is the provision of a further method for preparing such asphalt compositions.

5. Obviousness of the solution

5.1 It remains to be decided whether or not the skilled person desiring to solve the problem defined above, would, in view of the prior art, have modified the disclosure of the closest prior art in such a way as to arrive at the subject-matter claimed. The appellant cited in this respect documents D7, D9 and D10.

5.2 Turning to D10, this document contains on the reverse of the cover page a copyright notice dated 1996, and a notice stating that copies of the document could be obtained free of charge and that the information presented therein is based on the knowledge and experience gained by the authors from contact with technical representatives of asphalt cement suppliers and by working closely with asphalt paving contractors. Accordingly, contrary to the position of the respondent, the Board is convinced that the information content of D10 had been made available to the public prior to the date of priority claimed.

5.3 D10 describes on pages 8 and 9, in the whole section under the heading "PMAC systems for asphalt terminal", as well as in Figures 7 to 9, the preparation of masterbatches of bitumen and polymer, which masterbatches are diluted before use with additional asphalt for road construction. The Board is therefore satisfied that the preparation of concentrates of bitumen and polymer and their dilution with additional asphalt before use was a technique which was part of the knowledge of the person skilled in the art at the

relevant date. The availability to the public of that technique prior to the priority date of the patent in suit is also suggested in D9 (abstract, first sentence). Such a technique is also implied by the teaching on page 15, lines 1-30 of D1/1 according to which the content of polymer in the modified asphalt can be adjusted by dilution with an asphalt.

5.4 Furthermore, having regard to the formulation of the objective problem indicated in above section 4, it is undisputed that the selection of the concentration of polymer in the masterbatch defined in granted claim 1 from the broader range that could be envisaged by the one skilled in the art is neither critical nor a purposive choice. Accordingly, the act of choosing such an arbitrary range of amounts for the polymer in the concentrate is deemed to be within the routine activity of the skilled person faced with the mere problem of providing a further method for the preparation of asphalt compositions that were compliant with the SUPERPAVE requirements, the amount in the concentrate inevitably having to be larger than that usually taken for road construction, which for example is advantageously taken between 5 and 10 wt.% as indicated in D7 (page 6, lines 13-24).

5.5 Moreover, the Board agrees with the appellant's argument that the skilled person does not expect that the properties of the final product depend on the production of a concentrate and a subsequent dilution step, since those properties essentially depend on the constituents of the asphalt compositions and their amount, which are not modified by the preparation of an intermediate masterbatch and use of a dilution step. Accordingly, the skilled person would not hesitate to

carry out such steps in order to solve the problem identified in above section 4.

5.6 Therefore, the skilled person starting from the method of the closest prior art and having in mind the objective to merely provide a further method for the preparation of asphalt compositions that are compliant with the SUPERPAVE requirements, would be guided by the available knowledge in the art to modify the method of example 2 of D1/1 and to incorporate without the need for any inventive skills an intermediate step of providing a polymer concentrate comprising the amount of polymer defined in granted claim 1, which concentrate would need to be diluted e.g. before use to bring the asphalt composition to the concentration of polymer needed, arriving thereby in an obvious manner at the method of granted claim 1.

5.7 Accordingly, the subject-matter of claim 1 of the main request does not meet the requirements of Article 56 EPC.

First auxiliary request

6. The amendment in claim 1 of the first auxiliary request concerning the amount of phosphoric acid defined to be in the range of 0,1% to 1,0% by weight of the polymer modified asphalt does not result in the presence of an additional distinguishing feature compared to the method described in example 2 of D1/1 wherein phosphoric acid is used in an amount of 0,5 % by weight of the polymer modified asphalt. Accordingly, the reasoning of inventive step provided in respect of claim 1 of the main request must remain the same for claim 1 of the first auxiliary request.

Second and third auxiliary requests

7. The respondent did not indicate how the amendments contained in the second and third auxiliary requests could overcome the finding of lack of an inventive step in respect of the method according to claim 1 of the main request, but merely identified the amendments made stating that the arguments in support of an inventive step in respect of those auxiliary requests would be the same as those brought forward for the main request.

8. Under those circumstances the Board has no reason to conclude that the amendment contained in claims 1 of the second and third auxiliary requests, namely an amount of phosphoric acid of 0,4% by weight of the polymer modified asphalt, wherein the step of adding the phosphoric acid includes adding a source of a polyphosphoric acid (second and third auxiliary requests) and the addition of an aggregate to said diluted product (third auxiliary request) have been shown to overcome the finding that the method according to claim 1 of the main request lacks an inventive step.

In this respect there is no apparent reason, let alone evidence or even the slightest indication, that these features would result in a different formulation of the problem solved over the closest prior art. Since the treatment of an asphalt with a mineral acid such as phosphoric acid is a measure well known in the art, as indicated in paragraph [0003] of the patent in suit and illustrated in D1/1 and D7 (page 6, lines 8-10), the skilled person would not hesitate to use a different known source of phosphoric acid than that used in control example 2 of D1/1 or to select an amount of acid within the amount usually recommended for that purpose. Accordingly, it would be obvious for him to

use phosphorous pentoxide as a source of phosphoric acid (disclosed on page 4, line 1 of D1/1 and acknowledged in paragraph [0003] of the patent in suit to be a source of polyphosphoric acid known in the art) and/or to select in an arbitrary manner an amount of phosphoric acid of 0,4% by weight of the polymer modified asphalt, when D1/1 recommends to use from 0,01% to 2% by weight of inorganic adjuvant based on the asphalt (page 3, lines 25-27). The same applies to the additional measure of adding an aggregate to the obtained diluted product, since their use in the production of asphalt pavements is a conventional measure in the art. Accordingly, the additional measures contained in the auxiliary requests cannot overcome the negative finding of the Board concerning the main request.

9. Consequently, the first to third auxiliary requests are also found to lack an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

B. ter Heijden D. Semino

Decision electronically authenticated