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**Datasheet for the decision
of 15 April 2014**

Case Number: T 1464/12 - 3.3.09

Application Number: 01114515.8

Publication Number: 1167426

IPC: C08J3/20, C08K3/36, C08L21/00

Language of the proceedings: EN

Title of invention:
Method of preparing curable-rubber mixtures containing silica,
for producing treads

Applicant:
Bridgestone Corporation

Headword:

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Amendments of application - allowable (no)

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 1464/12 - 3.3.09

**D E C I S I O N
of Technical Board of Appeal 3.3.09
of 15 April 2014**

Appellant: Bridgestone Corporation
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 14 February
2012 refusing European patent application No.
01114515.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: J. Jardón Álvarez
Members: M. O. Müller
K. Garnett

Summary of Facts and Submissions

- I. This appeal lies from the decision of the examining division posted on 14 February 2012 refusing European patent application No. 01 114 515.8.
- II. The decision was based on a set of 15 claims filed on 1 September 2011. Claim 1 read as follows:

"1. A method of preparing curable-rubber mixtures containing silica, for producing treads, the method being characterized by comprising

- a first step to obtain a first mixture by simultaneously loading into a mixer and mixing together at least a cross-linkable unsaturated-chain polymer base, a first part of silica-based reinforcing filler, and a silane bonding agent; said first step being stopped upon said first mixture reaching a temperature ranging from 155°C to 175°C;
- a second step to obtain a second mixture by adding to, and dispersing in, the first mixture at least a second part of silica base reinforcing filler, said second step being arrested on reaching a temperature ranging from 145°C to 175°C; and
- a third step to obtain a third mixture by adding to, and dispersing in, the second mixture at least one curing agent; said third step being stopped at a temperature below a curing temperature of the third mixture;

at least in said first step the ingredients being mixed together in one uninterrupted mixing comprising a first part, in which said mixer is operated at a first mixing speed, said first part terminating on reaching a temperature ranging from 120 to 145°C; and a second successive part, in which said mixer is operated at a second mixing speed lower than the first speed and such

as to maintain the mixture at a temperature ranging from 150 to 175°C; amount of silica-based reinforcing filler added in the first step constituting 50% to 75% by weight of the total amount of silica used."

Claims 2 to 11 were dependent claims and claims 12 to 15 were directed to curable-rubber mixtures, treads and tyres obtained using the method of claims 1 to 11.

III. The examining division refused the application because in its opinion the subject-matter of claim 1:

- contained subject-matter extending beyond the content of the application as filed (Article 123(2) EPC),
- was not clear (Article 84 EPC), and
- lacked novelty (Article 54 EPC) and inventive step (Article 56 EPC) in view of the disclosure of D1 (EP 0 744 438 A1).

Additionally, the subject-matter of claims 12 to 15 was not novel (Article 54 EPC) over the disclosures of D2 (EP 0 732 362 A1) and D3 (EP 0 763 558 A1).

IV. On 12 April 2012 the applicant (in the following: the appellant) filed a notice of appeal and on the same day paid the appeal fee. The statement setting out the grounds of appeal was filed on 1 June 2012. With the statement setting out the grounds of appeal the appellant filed a new set of claims, the only difference from the claims on which the examining division's decision was based being the addition of the expression "one non-curing ingredient comprising" in the second step after the word "least".

- V. On 22 November 2013 the board dispatched a summons to oral proceedings. In the annexed communication the board indicated the points to be discussed during the oral proceedings. The board also indicated, *inter alia*, that the amendments of claim 1 did not appear to fulfil the requirements of Article 123(2) EPC.
- VI. On 14 March 2014 the appellant filed further arguments and two sets of claims for a main and an auxiliary request to replace its previous request.

Claim 1 of the main request reads as follows:

"1. A method of preparing curable-rubber mixtures containing silica, for producing treads, the method being characterized by comprising

- a first step to obtain a first mixture by simultaneously loading into a mixer and mixing together at least a cross-linkable unsaturated-chain polymer base, a first part of silica-based reinforcing filler, and all the silane bonding agent to be used in the curable-rubber mixture; said first step being stopped upon said first mixture reaching a temperature ranging from 155°C to 175°C;
- a second step to obtain a second mixture by adding to, and dispersing in, the first mixture at least one non-curing ingredient comprising a second part of silica base reinforcing filler, said second step being arrested on reaching a temperature ranging from 145°C to 175°C; and
- a third step to obtain a third mixture by adding to, and dispersing in, the second mixture at least one curing agent; said third step being stopped at a temperature below a curing temperature of the third mixture;

where at least in said first step the ingredients being mixed together in one uninterrupted mixing consisting of a first part, in which said mixer is operated at a first mixing speed, said first part terminating on reaching a temperature ranging from 120 to 145°C; and a second successive part, in which said mixer is operated at a second mixing speed lower than the first speed and such as to maintain the mixture at a temperature ranging from 155°C to 175°C;

wherein the amount of silica-based reinforcing filler added in the first step constituting 50% to 75% by weight of the total amount of silica used."

Claim 1 of the auxiliary request reads as follows:

"1. A method of preparing curable-rubber mixtures containing silica, for producing treads, the method being characterized by comprising

- a first step to obtain a first mixture by simultaneously loading into a mixer and mixing together at least a cross-linkable unsaturated-chain polymer base, a first part of silica-based reinforcing filler, and all the silane bonding agent to be used in the curable-rubber mixture; said first step being stopped upon said first mixture reaching a temperature of 170°C;
- a second step to obtain a second mixture by adding to, and dispersing in, the first mixture at least one non-curing ingredient comprising a second part of silica base reinforcing filler, said second step being arrested on reaching a temperature of 160°C; and
- a third step to obtain a third mixture by adding to, and dispersing in, the second mixture at least one curing agent; said third step being stopped at a temperature below a curing temperature of the third mixture;

where in said first step the ingredients being mixed together in one uninterrupted mixing consisting of a first part, in which said mixer is operated at a first mixing speed, said first part terminating on reaching a temperature of 130°C; and a second successive part, in which said mixer is operated at a second mixing speed lower than the first speed and such as to maintain the mixture at a temperature of 170°C;

where in said second step the ingredients being mixed together in one uninterrupted mixing consisting of a first part, in which said mixer is operated at a first mixing speed, said first part terminating on reaching a temperature of 130°C; and a second successive part, in which said mixer is operated at a second mixing speed lower than the first speed and such as to maintain the mixture at a temperature of 160°C;

wherein the amount of silica-based reinforcing filler added in the first step constituting 50% to 75% by weight of the total amount of silica used."

VII. On 15 April 2014 oral proceedings were held before the board. During the oral proceedings the allowability of the amendments in view of Article 123(2) EPC was discussed.

VIII. The arguments presented by the appellant in its written submissions and at the oral proceedings insofar as they are relevant for the present decision may be summarised as follows:

- Main request: Amended claim 1 was based on claim 1 as originally filed and further including the features relating to: (i) the presence of a second and a third step as claimed in claim 2 as filed; (ii) the presence in at least the first step of a first mixing high speed part and a second mixing

lower speed part as claimed in claim 3 as filed; (iii) the fact that a first part of silica is added in the first step and a second part of the silica is added in the second step as claimed in claim 6 as filed; and (iv) the fact that the amount of silica added in the first step constitutes 50% to 75% by weight of the total amount of silica used as claimed in claim 7 as filed.

Additionally, the first step of the method was amended to specify that all the silane bonding agent was added in the first step of the process in accordance with all the working examples of the application as filed.

Lastly, the temperature at the end of the second part of the first mixing step had been corrected to read "155°C to 175°C". The range disclosed in claim 3 as filed, namely a range of "150 to 165°C" contained a clerical error. The appellant argued that the skilled person would recognize the error in claim 3 as filed from examples 4 and 7 of the application. In fact, example 4 was the only example in the application as filed that could support the combination of features now claimed and its first mixing step ended at a temperature out of the range erroneously used in claim 3. In order to improve the support of example 4 for the amendment, the appellant also replaced the word "comprising" for "consisting of" in the first mixing step.

- Auxiliary request: Claim 1 of the auxiliary request was further amended to replace the temperature ranges of claim 1 of the main request

by the exact temperatures used in each step of example 4 of the application. Moreover a splitting into two different mixing speed parts was also introduced for the second mixing step. The claim now indicated the process steps and the temperatures reached in each step of example 4 which were responsible for the advantages of the claimed method.

- IX. The appellant requested that the decision under appeal be set aside and a patent be granted on the basis of claims 1 to 9 according to the main request, alternatively claims 1 to 8 according to the auxiliary request, both as filed with the letter dated 13 March 2014.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

2. *Amendments (Article 123(2) EPC)*
- 2.1 Claim 1 (see point VI above) as amended is directed to a method of preparing curable-rubber mixtures comprising three steps. The first and second steps are non-productive mixing steps (as they are carried out without curing agent) and the third step is a productive mixing step in the presence of at least one curing agent. As defined in the claim, the first non-productive mixing step consists of two mixing parts carried out at different mixing speeds and terminating at different temperature ranges. Claim 1 results from

the combination of the features of claims 1, 2, 3, 6 and 7 of the application as filed.

2.2 Additionally, claim 1 has been amended to specify:

(i) that all the silane bonding agent to be used in the preparation of the curable rubber mixture is added in the first step; and

(ii) that the first step consists of a first mixing part and a second part wherein in the second mixing part the mixture is maintained at a temperature ranging from 155°C to 175°C (emphasis by the board).

2.3 As regards amendment (i), the board agrees with the appellant that this amendment finds implicit support in the application as filed. Although there is no explicit disclosure of the feature in the application as filed, in all the working examples according to the claimed method (cf. examples 1, 3, 4, 6 and 7; examples 2, 5 and 8 are comparative examples) all the silane bonding agent is added in the first step and no further silane bonding agent is added in the further steps of the preparation of the rubber mixtures. Moreover, there is no indication in the application as filed that the silane bonding agent could be added at a later stage. A later addition is only described for the silica-based reinforcing filler (cf. page 5, lines 22 to 23 of the application as filed).

2.4 There is, however, no support for amendment (ii) in the application as filed. The temperature at the end of the second mixing part of the first step is defined in the application as filed as ranging from "150°C to 165°C"

not only in claim 3 as filed but also on page 5, line 13 of the specification as filed.

- 2.4.1 The appellant argues that the original range resulted from a clerical error. In its view a correction should be allowed in view of examples 4 and 7 and the wording of claim 1 as filed.
- 2.4.2 The board disagrees. It would not be evident to the skilled person that there is an error in the wording of claim 3 as filed. Claim 1 as filed required that the first step of the process be stopped at a temperature ranging from "155°C to 175°C". Dependent claim 3 further defined this first step by requiring that the ingredients are mixed in one uninterrupted mixing comprising a first part at a first mixing speed terminating on reaching a temperature ranging from 120 to 145°C and a second successive part at a lower mixing speed to maintain the mixture at a temperature ranging from "150 to 165°C".
- 2.4.3 While it is correct that there is a certain contradiction between the range at the end of the first step in claim 1 (155 to 175°C) and the range at which the temperature is maintained in the second mixing part of claim 3 (150 to 165°C), this contradiction does not automatically imply that there is an error in claim 3. The preferred process according to claim 3 is defined in an open way by the use of the word "comprising", which allows further steps before achieving the final temperature of the first step of claim 1.

Moreover, a possible error would affect only the lower part of the range, namely the range of 150 up to less than 155°C, which is outside the scope of the range of claim 1 and in this case the skilled person would be

likely to assume that a further mixing is necessary to achieve the temperature range of claim 1.

Lastly, even if it could be accepted that the above contradiction resulted from an error, there is no reason why the error should be in claim 3; it could equally well be in claim 1.

2.4.4 It follows from the above that the skilled person would not clearly recognize that there was an error in claim 3 of the application as filed and, even if he did, he would not know how to correct it.

2.4.5 Examples 4 and 7 cited by the appellant do not cause the board to alter this conclusion, for the following reasons:

- In example 7 a temperature of 130°C is achieved at the end of the first mixing part and a final temperature of 155°C is achieved at the end of the second part of the first mixing step. These temperatures fall within the ranges as defined in both claims 1 and 3 as filed. No mistake can be deducted from example 7.
- In Example 4 a temperature of 130°C is achieved at the end of the first mixing part and a final temperature of 170°C is achieved at the end of the second part of the first mixing step. This final temperature falls outside the scope of claim 3 as filed, but still falls within the temperature range of claim 1 as filed. The skilled person, when reading the application as filed, would understand that the method of example 4 would be an embodiment of the invention as broadly claimed in claim 1, but not according to the embodiment of

claim 3. Example 4, therefore, does not support the argument of the appellant that the temperature range disclosed in claim 3 was an obvious clerical error.

2.4.6 For these reasons the board concludes that there is no basis in the application as filed for the feature whereby in the second stage of the first mixing step the mixer is operated "such as to maintain the mixture at a temperature ranging from 155°C to 175°C" in claim 1 of the main request.

2.5 Consequently, claim 1 does not fulfil the requirements of Article 123(2) EPC and the request is not allowable.

AUXILIARY REQUEST

3. *Amendments (Article 123(2) EPC)*

3.1 Claim 1 of the auxiliary request (see point VI above), like claim 1 of the main request, results from the combination of claims 1, 2, 3, 6 and 7 of the application as filed.

3.2 It has further been amended by specifying that the second non-productive mixing step also consists of two mixing parts terminating at different temperatures as disclosed in example 4. Moreover, the temperature ranges disclosed in the application as filed have been replaced by the exact temperature values of example 4.

3.3 Claim 1 thus combines general features of claim 1 as filed such as the starting materials used (a cross-linkable unsaturated-chain polymer base, a silica-based reinforcing filler, a silane bonding agent, a curing agent) and process steps defined in a general way (a

first part operated at a first mixing speed; a second part operated at a second mixing speed lower than the first speed; the third step being stopped at a temperature below the curing temperature of the third mixture), with the specific temperature achieved in every step of the process of example 4.

3.4 According to EPO practice, values taken from a specific example can be combined with the general disclosure of the application only if the skilled person would have recognised that the values in the example are not so closely associated with the other features of the example as to determine the effect of the invention as a whole in a unique manner and to a significant degree.

3.5 This is not the case here. It is known to the skilled person in the field that the mixing temperatures reached in the preparation of curable-rubber mixtures are closely related to the other features of the process such as the mixing speed or the reactants used. In fact, this is also acknowledged in the specification itself, wherein it is indicated that the mixing temperatures reached in example 6 were lower than those described in example 1 because a different silane bonding agent was used (see page 13, lines 16 to 19).

3.6 The subject-matter of claim 1 of the auxiliary request therefore includes subject-matter not directly derivable from the application as filed. It also does not fulfil the requirements of Article 123(2) EPC and the request is therefore not allowable.

4. The patent application must therefore be refused because claim 1 of both requests does not fulfil the requirements of Article 123(2) EPC. Consequently, there

is no need for the board to consider in its decision the other issues raised in the appealed decision.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



M. Cañueto Carbajo

J. Jardón Álvarez

Decision electronically authenticated