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**Datasheet for the decision
of 14 May 2012**

Case Number: T 1041/09 - 3.3.05

Application Number: 01830112.7

Publication Number: 1236504

IPC: B01F 7/04, B29B 7/28

Language of the proceedings: EN

Title of invention:

Process for charging a closed mixer with pressing ram

Patentee:

Pirelli Tyre S.p.A.

Opponent:

Harburg-Freudenberger Maschinenbau GmbH

Headword:

Ram control/PIRELLI

Relevant legal provisions:

EPC Art. 54(1)(2), 56

Keyword:

"Main request: Novelty (yes), Inventive step (no)"

"First and second auxiliary requests: Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 1041/09 - 3.3.05

D E C I S I O N
of the Technical Board of Appeal 3.3.05
of 14 May 2012

Appellant: Harburg-Freudenberger Maschinenbau GmbH
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 5 March 2009
rejecting the opposition filed against European
patent No. 1236504 pursuant to Article 101(2)
EPC.

Composition of the Board:

Chairman: H. Engl
Members: J.-M. Schwaller
S. Hoffmann

Summary of Facts and Submissions

I. This appeal lies from the decision of the opposition division to reject the opposition filed against European patent No. 1 236 504, claim 1 of which reads as follows:

"1. Method of processing polymer-based mixtures and compounds in a closed mixer (1) comprising a mixing chamber (4), a pair of rotors (2, 3), a pressing ram (8) arranged above the rotors, movable between a raised resting condition which allows the introduction of material into the mixing chamber (4) and a lowered working condition during mixing, the method comprising the steps of:

- introducing the material into the mixing chamber (4);*
- introducing at least one reinforcing filler of a polymer base present in the mixing chamber (4);*
- moving the pressing ram (8) from the resting condition to an upper end-of-stroke position, said upper end-of-stroke position corresponding to the point at which the pressing ram (8) meets the compound;*
- moving the pressing ram from the upper end-of-stroke position to a lower end-of-stroke position during incorporation of said at least one reinforcing filler into the polymer base, said lower end-of-stroke position corresponding to the lowest point that can be reached by said pressing ram (8);*
- controlling a position-time profile of the pressing ram (8) during moving the pressing ram (8) from the upper end-of-stroke position to the lower end-of-stroke position so as the pressing ram (8) reaches the lower end-of-stroke position at the end of incorporation of*

said at least one reinforcing filler in the polymer base;

- introducing plasticizers of the processed polymer base into the mixer after the pressing ram (8) has reached the lower end-of-stroke position."

In the present decision, the above six steps will be called steps (a) to (f).

II. Among the documents cited during the opposition and appeal proceedings, the following ones are relevant for the present decision:

D1: 16. Kunststofftechnisches Kolloquium des IKV, Aachen, 11 - 13 March 1992, Block 4, pages 100 and 101

D3: EP 0 845 339 A1

D4: R.M. Murray and D.C. Thomson: *"Die Neoprene"*, E.I. Du Pont de Nemours & Co, Wilmington, Del., US, page 8 (1963).

III. In the contested decision, the opposition division held the subject-matter of above claim 1 to be novel, because document D1 did not disclose at least the feature of *"moving the pressing ram (8) from the resting condition to an upper end-of-stroke position, [...] so as the pressing ram (8) reaches the lower end-of-stroke position at the end of incorporation of said at least one reinforcing filler in the polymer base."*

The opposition division further considered the above subject-matter to involve an inventive step. Starting

from D3 which represented the closest state of the art, the problem underlying the contested patent was seen in the provision of a better and more constant dispersion of the reinforcing filler in the processed mass. As D1 was silent regarding the above problem and regarding the particular ram movement control defined in claim 1 above, the subject-matter of claim 1 was not obvious to a person skilled in the art.

IV. The grounds of appeal of the opponent (hereinafter "appellant") were received by a letter dated 13 July 2009.

V. The patentee (hereinafter "respondent") filed its observations by letter dated 15 January 2010. In a further submission of 5 April 2012 it submitted new claims as auxiliary requests 1 and 2.

Claim 1 of the second auxiliary request (amendments in comparison with claim 1 of the main request emphasised by the board) reads as follows:

"1. Method of processing polymer-based mixtures and compounds in a closed mixer (1) comprising a mixing chamber (4), a pair of rotors (2, 3), a pressing ram (8) arranged above the rotors, movable between a raised resting condition which allows the introduction of material into the mixing chamber (4) and a lowered working condition during mixing, the method comprising the steps of:

- introducing the material into the mixing chamber (4);*
- introducing at least one reinforcing filler of a polymer base present in the mixing chamber;*

- moving the pressing ram (8) from the resting condition to an upper end-of-stroke position, said upper end-of-stroke position corresponding to the point at which the pressing ram (8) meets the compound;
- moving the pressing ram (8) from the upper end-of-stroke position to a lower end-of-stroke position during incorporation of said at least one reinforcing filler into the polymer base, said lower end-of-stroke position corresponding to the lowest point that can be reached by the pressing ram (8);
- controlling a position-time profile of the pressing ram (8) during moving of the pressing ram (8) from the upper end-of-stroke position to the lower end-of-stroke position, so as the pressing ram (8) reaches the lower end-of-stroke position at the end of incorporation of said at least one reinforcing filler into the polymer base, **wherein after moving the pressing ram (8) from the upper end-of-stroke position to the lower end-of-stroke position, aggregates in the polymer base with an average diameter greater than 50 μm are almost completely eliminated;**
- introducing plasticizers of the processed polymer base into the mixer after the pressing ram (8) has reached the lower end-of-stroke position."

VI. A further submission of the appellant was received by letter dated 11 April 2012, including two new documents.

VII. At the oral proceedings, which took place on 14 May 2012, the discussion essentially focussed on novelty and inventive step issues having in particular regard to documents D1 and D4, of which D1 was acknowledged by the parties as representing the closest state of the art.

In order to overcome an objection under Article 123(2) EPC that the appellant raised during the oral proceedings, the respondent amended claim 1 of the first auxiliary request, which now reads (differences to claim 1 of the main request emphasised by the board):

"1. Method of processing polymer-based mixtures and compounds in a closed mixer (1) comprising a mixing chamber (4), a pair of rotors (2, 3), a pressing ram (8) arranged above the rotors, movable between a raised resting condition which allows the introduction of material into the mixing chamber (4) and a lowered working condition during mixing, the method comprising the steps of:

- introducing the material into the mixing chamber (4);*
- introducing at least one reinforcing filler of a polymer base present in the mixing chamber;*
- moving the pressing ram (8) from the resting condition to an upper end-of-stroke position, said upper end-of-stroke position corresponding to the point at which the pressing ram (8) meets the compound;*
- moving the pressing ram (8) from the upper end-of-stroke position to a lower end-of-stroke position during incorporation of said at least one reinforcing filler into the polymer base, said lower end-of-stroke position corresponding to the lowest point that can be reached by the pressing ram (8), **wherein the movement thereof is characterised by successive oscillations caused by the mass introduced into the mixing chamber, which is subject to a periodic movement imparted by the rotation of the rotors that superposes to the downward linear movement of the ram;***
- controlling a position-time profile of the pressing ram (8) during moving of the pressing ram (8) from the*

upper end-of-stroke position to the lower end-of-stroke position, so as the pressing ram (8) reaches the lower end-of-stroke position at the end of incorporation of said at least one reinforcing filler into the polymer base;
- introducing plasticizers of the processed polymer base into the mixer after the pressing ram (8) has reached the lower end-of-stroke position."

VIII. Requests

The appellant requested that the contested decision be set aside and that the European patent be revoked.

The respondent requested that the appeal be dismissed (main request) or, in the alternative, that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of auxiliary request 1 filed during oral proceedings or auxiliary request 2 filed with letter dated 5 April 2012.

Reasons for the Decision

1. Main request - Novelty

1.1 D1 is an excerpt from a report on a conference held in March 1992. The appellant argued that its disclosure destroyed the novelty of the subject-matter of claim 1 at issue (i.e. as granted).

It is undisputed that D1 concerns the mixing of a rubber base polymer and certain additives, such as reinforcing filler(s) and plasticiser(s), in a closed

mixer of the type defined in claim 1, i.e. a mixer comprising a mixing chamber, a pair of rotors and a pressing ram arranged above the rotors. In its section 2.3, D1 concerns in particular a study of the reproducibility of the mixing process and how it could be improved by controlling the movement of the ram.

- 1.2 The materials used in the study consist of a blend of SMR10 NR/SBR 80/20 (the rubber base polymer), 50 phr of soot and 5 phr of aromatic oil (see D1, page 101, section 2.3.2). It is undisputed that the aromatic oil is used as a plasticiser and the soot as a reinforcing filler for the rubber base polymer.

D1 does not give any detail as regards the time frame and the manner in which the above materials are introduced into the mixing chamber. It is nevertheless undeniable that the polymeric material and the reinforcing filler are introduced into the mixing chamber (by analogy this corresponds to steps a) and b) defined in claim 1 at issue). It is also undeniable that during the introduction of the polymer and filler the pressing ram is to be maintained in a upper position above the introduction point of the materials to be mixed, which upper position thus corresponds by analogy to the "resting condition" defined in step c) of claim 1 at issue.

- 1.3 D1 is also silent regarding the time frame for the introduction of the plasticiser (i.e. the aromatic oil). However, according to the appellant, who referred to the disclosure of D4, the plasticiser was necessarily added in a manner according to step f) defined in claim

1 at issue.

The board does not endorse this conclusion because D4, an excerpt from a general handbook relating to the manufacturing of neoprenes, although disclosing that plasticisers are generally added at the end of the mixing cycle, does **not** disclose that they are always added at the end of the mixing cycle, let alone that this is exactly what is done in D1. It follows that step f) cannot be derived directly and unambiguously from D1.

Therefore, at least for this reason the subject-matter of claim 1 at issue is novel (Article 54(1) and (2) EPC).

2. Main request - Inventive step

According to the problem-solution approach developed by the boards of appeal, the board came to the conclusion that claim 1 of this request fails to fulfill the requirements of Article 56 EPC for the following reasons:

- 2.1 The invention claimed (paragraphs [0001] to [0003] of the contested patent) concerns the mixing of a polymer base together with other ingredients in a mixer of the closed type. Closed mixers, also known as discontinuous mixers, are essentially formed by a mixing chamber accommodating a pair of rotors rotating in mutually opposite directions, wherein the material is loaded in predefined quantities and processed by the rotors which completely discharge it from the mixer at the end of

the cycle, before beginning to process a new batch of material.

- 2.2 The parties acknowledged document D1 as representing the closest state of the art and thus forming the starting point for assessing inventive step, as D1 pertains to the same technical field and discloses subject-matter intended for the same purpose as the subject-matter of claim 1 at issue.

- 2.3 In addition to the features detailed in points 1.1. and 1.2 above, the board considers that document D1 also directly and unambiguously discloses steps c), d) and e) of claim 1:
 - 2.3.1 As explained in D1 (see page 100, right column, lines 8 to 10), the purpose of the pressing ram is to convey the materials into the mixing chamber and to hold them in the mixing chamber. Therefore the pressing ram is held in its upper "resting condition" defined in point 1.2 during introduction of the polymer and filler into the filling channel, whereas for conveying these materials into the mixing chamber the pressing ram has to leave its "resting condition" and to move downwardly in the filling channel until its head contacts the mass of materials to be mixed. This contact point corresponds by analogy to the "upper end-of-stroke" defined in claim 1 at issue, which is therefore implicitly defined in D1.

The respondent disputed this, stating that moving an object from a position A to a position B implied that both positions were identified. In D1 the upper end-of-stroke position was not identifiable because the

downward movement of the ram was continuous. The board cannot accept this argumentation, because although D1 does not literally define an "upper end-of-stroke position", the "point at which the pressing ram meets the compound" inevitably exists in the continuous downward movement of the pressing ram disclosed in D1 and, if necessary, such a contact point may be identified. It follows that the sole difference between D1 and claim 1 as regards step c) is semantic.

- 2.3.2 In the next step defined in claim 1 at issue - step d) - the pressing ram moves from an "upper end-of-stroke" position to a "lower end-of-stroke" position, the latter being defined as corresponding to the lowest point that can be reached by the pressing ram.

In D1 (see item 2.3.1) the lowest point that can be reached by the pressing ram is discussed in the passage reading: "*Damit sich die Dichtleisten des Stempels wieder frei von Füllstoffpartikeln fahren, sollten kurz vor dem **Schließen** des Stempels gezielt einige kleinere Auf- und Abbewegungen aufgebracht werden*". In the board's view, the ram closure ("*Schließen des Stempels*") defined in this passage corresponds to the point at which the head of the pressing ram hits the opening to the mixing chamber. This lowest point corresponds by analogy to the "lower end-of-stroke" position defined in claim 1 at issue.

The respondent argued that the main concern of D1 was to avoid an uncontrolled rebound of the polymeric mixture. Therefore, D1 proposed to avoid these ram oscillations by moving the ram only up to the upper level that such oscillations would reach. Thus the

ram's downward movement would be stopped well before it hit the opening of the mixing chamber.

The board cannot subscribe to this argumentation because stopping the ram in such an intermediate position would have the consequence of an incomplete incorporation of the filler into the polymer base. Since D1 discloses that the ram is to be closed ("Schließen des Stempels"), it derives directly and unambiguously therefrom that the ram reaches its lowest position when it hits the opening to the mixing chamber. Were it not so, a quantitative incorporation of the filler would not be obtained.

- 2.3.3 As concerns step e), which requires the control of a position-time profile of the pressing ram during its movement from the upper to the lower end-of-stroke position until the ram reaches the lower end-of-stroke position at the end of incorporation of the reinforcing filler into the polymer base, it is undeniable that at least some form of control of the ram is disclosed in document D1, section 2.3.

The respondent however argued that in D1 the control was carried out so as to avoid the ram oscillations induced by the rebounding mass, as would be the case with an uncontrolled hydraulic ram. The pressing ram was therefore brought to the upper level of this oscillating motion to avoid the "dancing" of the ram. This upper level of oscillation was not the "upper end-of-stroke" defined in claim 1 at issue, i.e. the position at which the ram met the mixture for the first time upon its descent from the resting condition. Since D1 thus taught a control starting from the position

corresponding to the upper level of oscillation, there had not been any control before said first upper level of oscillation.

The board cannot accept this argumentation because from the position at which the ram meets the mixture, i.e. the position corresponding to the upper end-of-stroke in claim 1 at issue, the ram immediately encounters a certain resistance from the materials which have to be pushed downwardly into the mixing chamber and it is manifest for the skilled person that only if control is performed already at this very early stage is any uncontrolled rebound from the mass avoided.

The respondent further argued that the closure time of the ram in D1 did not correspond to the time at which the incorporation of the filler was finished. According to the respondent, this time corresponded to the time after which the filler was no longer separable from the polymer base, for example like the time it took to incorporate water and yeast into flour when making dough, which was much shorter than the time it took to obtain a uniform kneaded ball of dough in which continuing mixing led to a homogenous structure.

The board observes that the contested patent does not provide any explanation at all as regards the meaning of the expression "end of incorporation of said at least reinforcing filler". It follows that this expression is to be given the broadest possible meaning. Therefore, and in the absence of evidence to the contrary, the board considers the time of the end of incorporation of the filler to correspond to the time at which the filler is quantitatively incorporated

into the polymer base. As explained in point 2.3.1, this corresponds to the time at which the ram impacts the mixing chamber opening, which by analogy corresponds to the "lower end-of-stroke position" defined in claim 1 at issue.

For the above reasons the board is convinced that the control in D1 is performed in the same manner as defined in step e) of claim 1 at issue, i.e. from a position corresponding by analogy to the "upper end-of-stroke position" in claim 1 at issue to a position corresponding by analogy to the "lower end-of-stroke position" defined in claim 1 at issue, and the pressing ram reaches this latter position by analogy "at the end of incorporation" of the filler into the polymer base, exactly as in claim 1 at issue.

2.4 According to the contested patent (paragraph [0015]), the underlying problem would consist in allowing a better and more constant dispersion of the ingredients in a method of processing polymer-based mixtures and other compounds in a closed mixer.

2.5 As a solution to this technical problem, the contested patent proposes a method according to claim 1 as granted, which is characterised in particular in that:

c) the pressing ram is moved from the resting condition to an upper end-of-stroke position corresponding to the point at which the ram meets the compound;

d) the pressing ram is moved from the upper end-of-stroke position to a lower end-of-stroke position during incorporation of said at least one reinforcing

filler into the polymer base, said lower end-of-stroke position corresponding to the lowest point that can be reached by said pressing ram;

e) a position-time profile of the pressing ram is controlled during the movement of the ram from the upper to the lower end-of-stroke position so that the pressing ram reaches the lower end-of-stroke position at the end of incorporation of said at least one reinforcing filler in the polymer base;

f) plasticisers are introduced into the mixer after the pressing ram (8) has reached the lower end-of-stroke position.

2.6 On the question whether the problem indicated in point 2.4 has been effectively solved, the board observes that D1 (paragraph 2.3) already discloses a method of mixing a rubber base with soot and an aromatic oil in a closed mixer, which aims at improving the reproducibility of the mixing process by controlling the movement of the pressing ram.

Thus the problem of D1 and its solution are similar to the ones in the contested patent, at least as regards the reproducibility of the mixing process, since in the contested patent a more constant - i.e. a better reproducibility of the - dispersion of the ingredients is sought. Under such circumstances, according to the jurisprudence of the boards of appeal, the problem underlying the opposed patent has to be reformulated in less ambitious terms.

2.7 In the respondent's view, the reformulated problem would thus lie in the provision of **an optimised process** for mixing a polymer base and plasticiser. It referred in this respect to paragraph [0054] of the patent which addressed the problem of "identifying the optimum time for addition of the plasticising ingredients".

The board can accept this reformulation of the problem.

It is also credible that this problem has been solved, even without an objective comparison between the subject-matter claimed and the mixing process according to D1. According to a general handbook relating to the manufacturing of neoprenes (see D4, page 8, first full paragraph of the right column), for a better dispersion of the plasticiser it is added at the end of the mixing process.

2.8 It remains thus to be decided whether the proposed solution is obvious in view of the state of the art.

In the board's view, the solution proposed in claim 1 at issue is obvious for the skilled person faced with the problem of optimising the mixing process disclosed in document D1 in terms of plasticiser dispersion for the following reasons:

It is known from document D4 that plasticisers are in general to be added at the end of the mixing cycle, because adding the plasticiser at this time point provided for a lower discharging temperature of the batch. Furthermore, the absence of plasticiser in the first mixing period favoured the highest possible shear which was necessary for dispersing the reinforcing

fillers (D4, page 8, first full paragraph of the right column).

In view of this strong incentive to add the plasticiser exactly at the time point defined in claim 1 at issue, the board is of the opinion that the skilled person faced with the problem as reformulated of optimising the mixing process known from document D1 would inevitably arrive in an obvious way at the subject-matter of claim 1 at issue, since the advantages regarding the optimisation of the claimed process can be easily foreseen from the disclosure of document D4. It follows that no inventive skill is required to arrive at the subject-matter of claim 1 as granted, which therefore does not meet the requirements of Article 56 EPC.

3. First Auxiliary request - Inventive step

3.1 Identical to points 2.1 to 2.3 above

3.2 In comparison with claim 1 of the main request, the solution proposed in claim 1 of this request to the reformulated problem as proposed by the respondent (see point 2.7) further consists in that the movement of the pressing ram is characterised by successive oscillations caused by the mass introduced into the mixing chamber, which is subject to a periodic movement imparted by the rotation of the rotors that superposes to the downward linear movement of the ram.

3.3 On the question whether said problem has been effectively solved, the same remarks as in point 2.7

apply, since a successful optimisation is credible at least as regards step f).

Regarding the additional characterising features, the respondent argued that the claimed method allowed the occurrence of oscillations of the ram during its forward motion from the upper to the lower end-of-stroke. This indicated that the negative effects of such oscillations could be tolerated, or that they were compensated for by the advantages achieved by the peculiarity of the inventive method to end the controlled downward movement between the upper and the lower end-of-stroke in synchrony with the incorporation of the filler.

The board cannot accept this argumentation because there is no evidence that the negative effects of the oscillations would be compensated by any kind of advantage. Furthermore, it has not been established that the additional characterising features further contribute to the optimisation that has already been recognised for the subject-matter of claim 1 of the main request. It follows that the problem to be solved by the subject-matter of claim 1 of this request can be seen only in the provision of a process further optimised compared to the one defined in document D1.

- 3.3.1 On the question of whether the solution thus proposed is obvious in view of the state of the art, the board answers positively for the reasons already indicated in point 2.8, namely that the features in step f) are obvious in view of D1 taken in combination with the teaching of document D4.

3.3.2 Concerning step e), it is observed that the features which further characterise the movement of the ram in claim 1 at issue are broad in the sense that they encompass any type of oscillations caused by the material introduced into the mixing chamber, and no further detail is given in the description as to which type of oscillations is supposed to be covered by the claimed subject-matter.

It follows that the oscillations characterising the movement of the ram in step e) of claim 1 at issue can be any kind of oscillations, in particular those of the pressing ram depicted in Figure 11 in D1, reproduced hereinafter (see the "Stempelweg" curve):

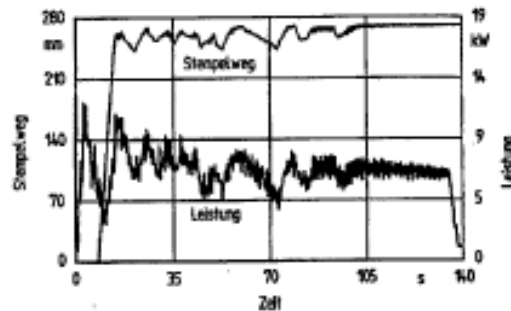


Bild 11: Beeinflussung zwischen Stempelkurve und Leistungskurve

Fig. 11: Correlation between ram and power curve

3.3.3 Bearing in mind the above remarks and insofar as no particular advantage is expected, in the board's view the skilled person would arrive at the subject-matter of claim 1 at issue without needing any inventive skill. The feature further characterising the movement of the ram in step e) of claim 1 is clearly disclosed and thus derivable from Figure 11 of D1 which depicts a ram's movement corresponding to the one defined in claim 1, i.e. characterised by oscillations caused by the material introduced into the mixing chamber. The board

observes in this respect that the respondent itself described these oscillations to be those of a "conventional, uncontrolled ram movement", i.e. according to the state of the art.

The board notes that the feature further specifying the subject-matter of claim 1 at issue is merely one of two obvious possibilities - either "with" or "without" oscillations - from which the skilled person would select, in accordance with the circumstances, in order to solve the problem posed, in particular when - as in the present case - no particular advantage or effect arises from the choice between these alternatives.

3.3.4 It follows from the above that the process according to claim 1 at issue is obvious from the disclosure of documents D1 and D4. Claim 1 therefore does not meet the requirements of Article 56 EPC.

4. Second Auxiliary Request - Inventive step

4.1 Identical with points 2.1 to 2.3 above.

4.2 In comparison with claim 1 of the main request, the solution proposed in claim 1 of this request to the reformulated problem as proposed by the respondent (see point 2.7) is further characterised in that after moving the pressing ram from the upper to the lower end-of-stroke - i.e. after the end of motion in step d) - aggregates in the polymer base with an average diameter of more than 50 μm are almost completely eliminated.

4.3 On the question whether the said problem has been effectively solved, the same remarks as in point 2.7 apply, as a successful optimisation is credible at least as regards step f) defined in claim 1 at issue.

Regarding the further characterising features, the respondent argued at the oral proceedings that the subject-matter thus claimed provided for a further optimisation as regards the provision of a process for obtaining a mixed product having a particular agglomerates' size within a specified time frame.

4.4 On the question whether the solution as proposed in claim 1 at issue to the above problem is obvious in view of the state of the art, the board answers positively for the reasons already indicated in point 2.8, namely that the features in step f) defined in claim 1 at issue are obvious in view of D1 taken in combination with the teaching of document D4.

4.4.1 The claim feature defining that "after moving the pressing ram from the upper to the lower end-of-stroke, aggregates in the polymer base with an average diameter of more than 50 μm are almost completely eliminated" expresses in the board's view a result to be achieved.

The board however observes that it has not been established that the size of the aggregates defined therein was related to, or the direct result of, the process features defined in steps a) to e) according to claim 1 at issue.

Incidentally, if this were the case, the mix of aggregates obtained with the process according to D1

would be identical to the one defined in step e) - since D1 discloses the processing steps a) to e) defined in claim 1 at issue (see point 2.3 above) - and the subject-matter of claim 1 at issue would thus lack inventive step for the same reasons as claim 1 of the main request.

- 4.4.2 If the features defining the above "result to be achieved" were not the direct result of the process features defined in steps a) to e), the subject-matter of claim 1 at issue would in the board's view also not be based on inventive activity, because it is common general knowledge that the dispersion rate - and thus the size of the agglomerates produced - in a mixing process is dependent on the shear rate applied to the mixture by the rotors, and that generally the higher the shear rate is the smaller the aggregates' size will become.

It follows therefrom that by optimising (by trial and error experimentation) the shear rate applied to the rotors of the mixing device, the skilled person faced with the problem of looking for an alternative optimised process to the one disclosed in the combined teachings of D1 and D4 would arrive without inventive skill at the subject-matter of claim 1 at issue.

Regarding the value "50 μm " defining the upper limit for the size of agglomerates defined in claim 1 at issue, this feature is to be regarded as merely arbitrary since no particular effect or advantage in connection with the choice of this particular value has been presented credibly.

4.4.3 As regards the respondent's argument that the subject-matter claimed provided for a further optimisation as regards the provision of a mixed product having a particular agglomerates' size within a specified time frame, the board can accept this argument. However, as explained above, no inventive skill can be seen in the claimed subject-matter since, on the one hand, the end of incorporation of the reinforcing filler in the process according to D1 also coincides with the pressing ram reaching its lowest position and, on the other hand, the optimisation of the agglomerates' size in a mixing process - which is independent of the controlling steps defined in claim 1 at issue - is common general knowledge in the technical field concerned.

4.4.4 It follows from the above that the process according to claim 1 at issue derives in an obvious way from the disclosure of documents D1 and D4 in combination with common general knowledge. Claim 1 does therefore not meet the requirements of Article 56 EPC.

4.5 As none of the requests meet the requirements of the EPC, the patent cannot be maintained in any of the forms proposed by the respondent.

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:

C. Vodz

H. Engl