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Datasheet for the decision of 17 September 2014

Case Number: T 1850/12 - 3.3.06

Application Number: 04733853.8

Publication Number: 1627034

IPC: C11D3/02, C11D3/12

Language of the proceedings: EN

Title of invention:
Composition for the protection of glassware in a dishwashing process

Patent Proprietor:
Reckitt Benckiser N.V.

Opponent:
Henkel AG & Co. KGaA

Headword:
Glassware protection / RECKITT BENCKISER

Relevant legal provisions:
EPC Art. 52(1), 54, 56

Keyword:
Novelty (yes)
Inventive step (yes) : unexpected improvement

Decisions cited:

Catchword:

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Case Number: T 1850/12 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 17 September 2014

Appellant: (Opponent)	Henkel AG & Co. KGaA Henkelstrasse 67 40589 Düsseldorf (DE)
Representative:	Henkel AG & Co. KGaA FJI Patente 40191 Düsseldorf (DE)
Respondent: (Patent Proprietor)	Reckitt Benckiser N.V. Siriusdreef 14 2132 WT Hoofddorp (NL)
Representative:	Bowers, Craig Malcolm Reckitt Benckiser Corporate Services Limited Legal Department - Patents Group Dansom Lane Hull HU8 7DS (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 25 June 2012 rejecting the opposition filed against European patent No. 1627034 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	B. Czech
Members:	L. Li Voti
	J. Geschwind

Summary of Facts and Submissions

I. The present appeal is from the decision of the Opposition Division to reject the opposition against European patent no. 1 627 034.

II. Claim 1 of the granted patent reads as follows:

"*1. The use of a composition comprising zinc and bismuth for the protection of glassware in an automatic dishwashing process.*"

Dependent claims 2 to 16 of the granted patent relate to particular embodiments of the use according to claim 1.

III. In its notice of opposition the Opponent had sought the revocation of the patent on the grounds of Article 100(a) EPC, i.e. lack of novelty and lack of inventive step.

The raised objections were based *inter alia* on the disclosures of the following documents:

D1: EP 0 070 587 A1;
D2: DE 27 47 602 A1;
D3: US 2 425 907 A.

IV. The Opposition Division found in its decision that the subject-matter of claims 1 to 16 as granted was novel and involved an inventive step over the cited prior art.

In particular, the Opposition Division considered that document D1 did not contain any clear and unambiguous disclosure of the use of a combination of zinc and

bismuth in the rinse aid composition disclosed in that document.

As regards inventive step, the Opposition Division held that (pages 4 and 5 of the decision under appeal), "*In the patent in suit data are provided which demonstrate enhanced glassware protection against corrosion and glass clouding. This holds true for undecorated and decorated glassware as well. ... With regard to the metal compounds it can be seen that the combination of zinc and bismuth provides better protection against glass corrosion than the individual metals do. This is surprising in so far as bismuth in some cases provides worse results in comparison to when no metal compound is used (see tables 7a and 8a for "Octime"). So one should expect a negative impact when combining zinc and bismuth. However, the combination of zinc and bismuth again provides better results than the compounds taken alone (see table 9a). Again the effect is more than additive and show some synergism. ... Benefits effects are shown for all glass types. Resuming one can say that on average the effect is better than one would expect, meaning better than one would expect from simple summing up. ...the evaluation according to mass loss ... clearly demonstrates a technical effect. This effect is visible not only on average but for all glass types individually. This outcome is not predictable by the prior art, neither taken alone nor in combination of two or more documents.*"

Therefore, the Opposition division concluded that the subject-matter of the granted claims involved an inventive step.

V. The Appellant/Opponent maintained in the statement of the grounds of appeal that the subject-matter of the

granted claims lacked novelty over the disclosure of document D1 or that it lacked inventive step in the light of the combination of document D1 with any of D2 or D3.

In its written reply, the Respondent rebutted all the objections raised. With a further letter of 22 July 2014 it filed two sets of amended claims as auxiliary requests.

The Appellant announced with letter of 26 August 2014 that it would not attend the oral proceedings but it maintained the arguments exposed in the statement of the grounds of appeal.

VI. Oral proceedings before the Board were held on 17 September 2014 in the absence of the duly summoned Appellant.

VII. The Appellant requested in writing that the decision under appeal be set aside and that the European patent be revoked.

The Respondent requested that the appeal be dismissed or, in the alternative, that the patent be maintained on the basis of the claims according to one of the first or second auxiliary requests both submitted by letter of 22 July 2014.

VIII. As relevant here, the arguments of the parties can be summarised as follows:

The Appellant submitted in writing that

- D1 disclosed in its claim 1 the use in an automatic dishwashing machine of a rinse aid composition

containing 0.1 to 10% by weight of polyvalent ions selected from Mg^{++}, Zn^{++}, Sn^{++++}, Bi^{+++}, Sn^{++}, Ti^{+++} and mixtures thereof, in the form of their water-soluble salts; even though the combination of zinc and bismuth salts was not specifically disclosed in any example of document D1, it was already explicitly disclosed by the wording of claim 1; moreover, its use for inhibiting the corrosion of glassware was derivable from the overall disclosure of D1; therefore, the subject-matter claimed in the patent in suit lacked novelty;

- as regards the evaluation of inventive step, the skilled person could have selected as starting point the use of a composition containing a zinc or magnesium salt as disclosed in the examples of document D1; moreover, he would have learnt from the wording of claim 1 that a combination of zinc and bismuth could be used; the skilled person would have also learnt from each of documents D2 and D3 that bismuth salts performed well in the reduction of glass corrosion; therefore, it would have been obvious for the skilled person to test within the framework of mere routine trials a combination of zinc and bismuth salts;

- hence, the claimed subject-matter lacked an inventive step.

The Respondent submitted that

- the generic list of salts disclosed in claim 1 of document D1 encompassed a large number of theoretically possible combinations, for example 15 combinations involving two ions and many other combinations involving more than 2 ions; therefore, claim 1 of D1 could not be considered to disclose the specific combination of zinc and bismuth;

- the technical effect achieved by the invention, as evidenced by the data contained in the patent in suit, as well as the Opposition Division's finding that a combination of zinc and bismuth would have been expected to have a negative impact but was found, on the contrary, to provide a synergistic effect, were not contested by the Appellant;

- therefore, even though it was known that zinc and bismuth could be used individually for preventing glass corrosion, it was surprising that their combination provided an unexpected reduction in glass corrosion both on decorated and non-decorated glassware;

- the claimed subject-matter thus involved an inventive step.

Reasons for the Decision

Novelty - Claim 1 as granted

1. Claim 1 as granted reads: "*The use of a composition comprising zinc and bismuth for the protection of glassware in an automatic dishwashing process.*"

1.1 Document D1 discloses (claim 1 and page 3, lines 11 to 20) a "liquid rinse aid composition for use in an automatic dishwashing machine comprising from 0.1 to 10% by weight of polyvalent ions selected from Mg^{++}, Zn^{++}, Sn^{++++}, Bi^{+++}, Sn^{++}, Ti^{+++} and mixtures thereof, said ions being present in the form of a water soluble salt thereof".

Moreover, the description of document D1 (page 3, lines 1 to 9), clearly points out that the aim of the

invention was the prevention of glass corrosion arising in the rinse stage of an automatic dishwashing machine cycle and that "it has been surprisingly been found that the addition of water soluble Zn or magnesium salts to the final rinse substantially eliminates this soft water corrosion."

However, the use of a mixture specifically comprising Zn^{++} and Bi^{+++} is not explicitly mentioned in the description or described in the examples of document D1.

1.2 In fact, the generic disclosure provided by a list of six polyvalent ions and a general reference to mixtures thereof encompasses theoretically 15 different binary mixtures and even more mixtures of three or more ions. However, document D1 contains no pointer to the use of a specific mixture containing zinc and bismuth ions together, let alone to the use of such a specific mixture for the protection of glassware in an automatic dishwashing process. On the contrary, all the examples of D1 describe the use of only one polyvalent metal ion, i.e. of Zn^{++} or of Mg^{++}, i.e. none of the examples describes the use of Bi^{+++} or of a combination of two or more of said metal ions.

1.3 Therefore, in the Board's judgement, said generic disclosure does not take away the novelty of the specific combination of features defining the subject-matter of claim 1 as granted.

The subject-matters of claim 1 as granted and, consequently, of claims 2 to 16 dependent thereon, are thus novel (Articles 52(1) and 54 EPC).

Inventive step - Claim 1 as granted

2. The present invention concerns the use of a composition comprising polyvalent metal ions in an automatic dishwashing process.

According to the patent in suit (paragraph [0010]) it was known that zinc containing compositions did not perform satisfactorily with respect to the prevention of decorated glassware corrosion.

3. Both parties considered document D1 to represent the closest prior art. The Board has no reason to take a different stance since D1 discloses *inter alia* (see page 1, lines 4 to 8 and page 6, lines 16 to 20; claim 1) the use of a composition comprising a water soluble zinc salt in the final rinse of an automatic dishwashing process for protecting glassware against soft water corrosion.

4. As regards the technical problem solved by the claimed invention in the light of D1, the Respondent submitted that it concerned the improvement of the protection of both decorated and non-decorated glassware against corrosion during an automatic dishwashing cycle (see also paragraph [0019] of the patent in suit).

5. As the solution to said technical problem, the patent in suit proposes the use according to claim 1 which is characterised in particular in that "*a composition comprising* ***zinc and bismuth***" is used for said purpose.

6. As regards the success of the claimed solution, the Board notes that, as acknowledged in the decision under appeal (see points IV and VIII above), the comparative tests contained in the patent in suit show convincingly

that the use of a composition comprising both zinc and bismuth in an automatic dishwashing cycle provides an unexpected improvement of the protection of both decorated and non-decorated glassware, which improvement is greater than what it could be expected when considering the individual performances of zinc or bismuth taken alone.

The results of these tests and the conclusion drawn therefrom by the Opposition Division were not contested by the Appellant, and the Board sees no reason either for calling into question their validity. Hence, there is no need to discuss them in detail.

The Board thus concludes that the technical problem posed (point 4 *supra*) is successfully solved by the claimed solution.

7. It remains thus to be decided whether it was obvious for the skilled person, starting from the closest prior art represented by the use of a composition containing zinc during an automatic dishwashing cycle according to document D1, to use bismuth in combination with zinc in order to achieve an improved protection of both decorated and non-decorated glassware against corrosion.

7.1 Document D1 taken alone

7.1.1 As already indicated above (point 1.2), document D1, though claiming that the rinse aid composition to be used according to that invention may comprise water-soluble salts of six different polyvalent ions, including zinc and bismuth ions, does not disclose specifically any composition containing more than one type of ion. Moreover, this document does not address

the issue of how to improve the protection of both non-decorated and decorated glassware during an automatic dishwashing cycle.

7.1.2 Document D1, disclosing in its examples the use of Zn^{++} (or Mg^{++}) alone, apparently considers all listed polyvalent ions to be equivalent and does not disclose any specific mixture of salts. Hence, it does not contain any pointer to the use of the specific combination of zinc and bismuth salts, let alone to the possibility of obtaining thereby an improved protection of both decorated and non-decorated glassware against corrosion.

7.1.3 More particularly, the Board remarks also that even though bismuth was known to be useful in the prevention of corrosion of decorated glassware, it was also known to bring about stains on non-decorated glassware, as acknowledged in the patent in suit (paragraph [0014]).

The test results reported in the patent in suit (comparative example 2(M) and paragraph [0082]), which were not contested by the Appellant, confirm that metallic bismuth offers indeed poor protection for both decorated and non-decorated glassware.

Thus, as acknowledged in the decision under appeal (point IV above), the skilled person would tend to expect a negative impact on the anti-corrosive effect when adding bismuth to a zinc containing composition according to D1.

Therefore, the Board is convinced that the skilled person, in the light of the known individual performances of zinc and bismuth regarding the prevention of corrosion of glassware in automatic

dishwashing, would not have expected that their combination could bring about a surprising improvement of the protection for both decorated and non-decorated glassware.

7.1.4 The Board concludes that the skilled person, even considering the available knowledge about the performance of zinc and bismuth in protecting glassware against corrosion, would not have considered a combination of zinc and bismuth, which is a theoretical option within the framework of the teaching of document D1, in the expectance of obtaining an improved protection of both decorated and non-decorated glassware against corrosion.

7.2 Combination of D1 with any of documents D2 or D3

7.2.1 According to document D2 it was known that alkali salts of zinc, used for protecting glassware in an automatic dishwashing machine, may have a negative impact on the appearance of the glass surface (page 4, lines 1 to 17). For this reason document D2 suggests to use instead, for example, salts of bismuth (page 4, second paragraph, last sentence; page 5, lines 4 to 14).

Therefore, this document would not prompt the skilled person to additionally use bismuth in a composition containing zinc as disclosed in document D1, but rather to replace zinc with bismuth. Moreover, D2 does not contain any suggestion either that the combination of zinc and bismuth could improve the protection of both non-decorated and decorated glassware against corrosion.

7.2.2 Document D3 teaches to use chlorides of, *inter alia*, bismuth for protecting glassware used in the food

industry against the corrosive attack of caustic alkali during a washing cycle (see claim 1 and column 1, left column, lines 30 to 40).

However, also this document does not contain any suggestion that a combination of bismuth and zinc could improve protection of non-decorated and decorated glassware in an automatic dishwashing cycle.

Therefore, this document does not contain any suggestion prompting the skilled person to add such a bismuth chloride into a composition containing zinc as disclosed in document D1 in order to improve protection of non-decorated and decorated glassware.

7.3 Hence, neither document D1, taken alone, nor the combinations of document D1 with D2 or D3, would lead the skilled person to the solution of the technical problem mentioned above in an obvious manner.

7.4 The Board concludes that the subject-matters of claim 1 at issue and, consequently, of claims 2 to 16 dependent thereon, involve an inventive step (Articles 52(1) and 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Magliano B. Czech

Decision electronically authenticated