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**Datasheet for the decision
of 22 March 2019**

Case Number: T 2354/15 - 3.3.06

Application Number: 02725784.9

Publication Number: 1406976

IPC: C09C1/56, C09D5/02, C09D7/12

Language of the proceedings: EN

Title of invention:
Coating compositions comprising high t-area carbon products

Patent Proprietor:
CABOT CORPORATION

Opponent:
Orion Engineered Carbons GmbH

Headword:
High t-area carbon products / CABOT CORPORATION

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step (new main request) : yes

Decisions cited:

Catchword:



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Case Number: T 2354/15 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 22 March 2019

Appellant: CABOT CORPORATION
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 7 October 2015
revoking European patent No. 1406976 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman J.-M. Schwaller
Members: L.Li Voti
J. Hoppe

Summary of Facts and Submissions

- I. The present appeal is against the decision of the Opposition Division to revoke European Patent no. 1 406 976.
- II. With its grounds of appeal, the Patent Proprietor (from now on "the Appellant") filed twelve sets of claims as main request and 1st to 11th auxiliary requests.
- III. In its reply and in further letters, the Opponent (from now on "the Respondent") maintained inter alia objections under Article 56 EPC against all requests.
- IV. In response to the board's provisional opinion, the Appellant withdrew the pending main request and the 1st to 5th auxiliary requests.
- V. During the Oral proceedings, which were held on 22 March 2019, the Appellant withdrew all its previous requests and filed three new sets of claims labeled 1st to 3rd auxiliary request, which then became new main and new first to second auxiliary request, respectively.

Against the claims according to the new main request the Respondent maintained only an objection under Article 56 EPC, starting from document D8 (RAVEN RUSSE, Columbian Chemicals Company, 12/1999) as representing the closest prior art.

- VI. The final requests of the parties were the following:

The Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims according to the new main request,

or auxiliarily, on the basis of any of the new first and second auxiliary requests, all requests filed during oral proceedings.

The Respondent requested that the appeal be dismissed.

VII. Independent claim 1 according to the new main request reads as follows:

"1. A coating composition comprising a liquid vehicle and a modified carbon product having a t-area greater than or equal to 350 m²/g (ASTM D5816), wherein the modified carbon product comprises a carbon product having attached at least one organic group,

a) wherein the organic group comprises at least one ionic group, at least one ionizable group, or a mixture of at least one ionic group or at least one ionizable group, wherein the ionic group is selected from -SO₃⁻, HPO₃⁻ and -PO₃²⁻, and the ionizable group is selected from -SO₃H, -PO₃H₂, -SO₂NH₂ and -SO₂NHCOR', where R' represents hydrogen or an organic group; or

b) wherein the organic group is -C₆H₄CO₂⁻ or -C₆H₄SO₃⁻."

Dependent claims 2 to 11 concern particular embodiments of the coating composition according to claim 1.

Reasons for the Decision

1. New main request - Inventive step

1.1 The subject-matter of claim 1 relates to coating compositions comprising a liquid vehicle and a modified carbon product having attached at least one selected organic group and having a t-area, according to the standard ASTM D5816, greater than or equal to 350 m²/g.

- 1.2 According to paragraph [0005] of the patent in suit:
"An important variable determining the performance of carbon products in coating compositions is surface area" which "is known to effect such properties as gloss, jetness, and bluetone."

The description (page 3, lines 1-2 and 5-6) further states that *"commercially available pigments for high color coating applications are designed to afford best compromise of surface area and dispersion quality and stability"* and that *"a need remains for improved compositions with high color performance and good overall application and mechanical properties."*

- 1.3 Both parties agreed during oral proceedings that D8 and, in particular, a coating composition comprising the carbon black product Raven 5000 Ultra II (D8, second page, first product of the table) represented the closest prior art.

Since D8 (fifth page) states that the Ultra[®] furnace carbon blacks are suitable for giving rise to improved properties such as deeper colour development and that in particular Raven 5000 Ultra II is suitable for providing the deepest black and blue undertones in car paints (i.e. coating compositions comprising a liquid vehicle), the Board agrees that D8 is a suitable starting point for the evaluation of inventive step according to the problem-solution approach.

- 1.4 As stated by the Appellant in its statement of ground and confirmed by the Respondent during oral proceedings, carbon black Raven 5000 Ultra II is an oxidized carbon black having -COOH groups on its surface and a t-area of 356 m²/g. Thus, as found in the decision under appeal, this carbon product is a

modified carbon black product having attached -COOH organic groups.

A car paint containing such a product differs thus from the subject-matter of claim 1 at issue only insofar as the used modified carbon product does not contain attached thereto at least one of the organic groups specified in claim 1.

- 1.5 The Appellant has defined the technical problem underlying the invention with respect to D8 as being the provision of a coating composition comprising a modified carbon product which besides having good overall application and mechanical properties also provides improved color performance in terms of a balance of gloss, jetness and bluetone.
- 1.6 The patent in suit makes a comparison (Example 1 and Comparative Example 4) between coating compositions comprising a modified carbon black according to claim 1 at issue (CB-A; Ex.1), having as organic groups attached thereto $-C_6H_4SO_3Na$ groups (which in acidic environment are present as $-C_6H_4SO_3^-$), with compositions comprising Raven 5000 Ultra II, i.e. the modified carbon black of the closest prior art D8 (see Comp. Ex. 4).

It is not in dispute that this comparison shows at least the improved jetness and comparable gloss and bluetone (compare the values in Tables 2 and 3 and the explanation thereto in paragraph [0052]) of the compositions according to claim 1.

- 1.7 The Respondent submitted that the patent in suit did not contain any comparison with respect to compositions comprising other modified carbon products encompassed

by the wording of claim 1 and that it was not credible that a modified carbon black having attached thereto $-C_6H_4COO^-$ groups instead of $-C_6H_4SO_3^-$ groups could bring about comparable results because of the different chemical behaviour of these groups within the coating composition.

- 1.8 The Board observes that the Respondent did not file any evidence for its allegation. To the contrary the patent (paragraph [0041]) clearly states that the claimed coating compositions "*can be used in a variety of different end-use applications to give coatings with improved overall performance properties ... with improved jetness and bluetone.*", and (paragraph [0032]) that the carbon product has to be tailored according to the specific coating application.

The Board thus has no reason to presume that the other modified carbon products encompassed by claim 1 at issue would not give rise to similar advantages over compositions comprising a modified carbon black having attached $-COOH$ groups like Raven 5000 Ultra II.

The Respondent has thus not discharged itself of its burden of proof.

- 1.9 Therefore and in view of the evidence given in the patent in suit, the Board agrees with the Appellant that the subject-matter of claim 1 has convincingly solved the technical problem formulated above.
- 1.10 It remains thus to decide whether the skilled person faced with the above technical problem would have been led towards a composition according to claim 1 by the teaching of D8, which is the only document cited in

this respect by the Respondent, or by common general knowledge at the priority date of the patent in suit.

- 1.10.1 In this respect the Board notes that Raven 5000 Ultra II has the highest t-area of all carbon blacks listed in D8 and that, apart from Raven 5000 Ultra III, all other products of D8 have a t-area below that required by claim 1 at issue. D8 furthermore indicates that Raven 5000 Ultra II is the best choice for providing the deepest black (jetness) and blue undertones.

D8 however does not contain any teaching that would have prompted the skilled person to investigate or to try different modified carbon blacks having a t-area similar to that of Raven 5000 Ultra II.

Neither did the Respondent provide any evidence that such modified carbon blacks were part of common general knowledge.

- 1.10.2 The Board thus concludes that, in the light of the teaching of D8 and of common general knowledge, it was not obvious for the skilled person to try, instead of Raven 5000 Ultra II, a modified carbon product according to claim 1 issue, in order to improve color performance.

- 1.11 It follows from the above considerations that the subject-matter of claim 1 (and by the same token that of claims 2 to 11 which depend on claim 1) according to the new main request involves an inventive step (Article 56 EPC).

- 1.12 Other objections have neither been raised nor are such objections apparent for the board.

2. Since the claims of this request meet the requirements of the EPC, there is no need to consider the lower-ranking requests.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent in amended form on the basis of claims 1 to 11 of the new main request dated 22 March 2019, and a description to be adapted thereto.

The Registrar:

The Chairman:



D. Magliano

J.-M. Schwaller

Decision electronically authenticated