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**Datasheet for the decision
of 29 July 2014**

Case Number: T 0596/13 - 3.3.01

Application Number: 02767383.9

Publication Number: 1425353

IPC: C09D5/10, C09D1/02

Language of the proceedings: EN

Title of invention:

COATING COMPOSITION FOR METAL SUBSTRATES

Patent Proprietor:

Akzo Nobel Coatings International B.V.

Opponent:

W.R. Grace & Co.-Conn.

Headword:

Coating composition for metal substrates/AKZO NOBEL

Relevant legal provisions:

EPC Art. 54, 56

RPBA Art. 13(3)

Keyword:

Novelty -

Combination of features not disclosed in the cited prior art

Inventive step - obvious combination of known features

Late-filed auxiliary request 2 - admitted - (yes) -

No divergence and could be dealt with without postponement of
the oral proceedings.

Decisions cited:

T 0871/08

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 0596/13 - 3.3.01

**D E C I S I O N
of Technical Board of Appeal 3.3.01
of 29 July 2014**

Appellant: Janssen, B.
(Opponent) W.R. Grace & Co.-Conn.
Grace Plaza, 1114 Avenue of the Americas
New York, N.Y. 10036 (US)

Representative: UEXKÜLL & STOLBERG
Patentanwälte
Beselerstrasse 4
22607 Hamburg (DE)

Respondent: Akzo Nobel Coatings International B.V.
(Patent Proprietor) Velperweg 76
6824 BM Arnhem (NL)

Representative: Hobel, K.
Akzo Nobel N.V.
Intellectual Property Department
P.O. Box 9300
6800 SB Arnhem (NL)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
7 January 2013 concerning maintenance of the
European Patent No. 1425353 in amended form.**

Composition of the Board:

Chairman A. Lindner
Members: J.-B. Ousset
L. Bühler

Summary of Facts and Submissions

- I. An appeal was filed against the interlocutory decision of the opposition division concerning European patent No. 1 425 353.
- II. The opposition division found that the then pending main request (granted version of the claims) contravened Article 54 EPC in view of the disclosure of example 8 of document (1). The first auxiliary request filed on 27 September 2012 was in agreement with the requirements of Articles 123(2) and (3) and 84 EPC and regarded as novel and inventive in view of the disclosure of the same document (1). It consequently maintained the patent in suit on the basis of this request and an amended version of the description.
- III. Relevant prior art is represented by the following documents:
- (1) WO-A-00/55261
 - (2) US-A-4 439 239
 - (3) US-A-5 091 460
 - (4) US-A-3 976 497
- IV. The appellant (opponent) argued mainly as follows:
- a) The claimed subject-matter was not novel in view of the disclosure of document (1). The appellant further argued that the PVC was not 81% but rather 74.6%, since example 8 (see page 16, line 12) referred back to example 1 in which the PVC is 74.6% (see page 14, line 31). The introduction of the feature "between 35% to 65%" for the amount of pigment volume concentration (PVC) was already disclosed in the paragraph bridging pages 6 and 7

of document (1). The selected sub-range was neither narrow, nor sufficiently far-removed from the examples and the selected area was arbitrarily chosen (not purposive).

- b) In case that the claimed subject-matter was considered novel, an inventive step could not be acknowledged on the basis of document (1). This was corroborated by the disclosures of documents (2) to (4).
- c) Table 1 of the patent in suit did not show that an improvement in the mechanical properties was due to the specific amounts of PVC.

V. With its reply to the appellant's arguments, the respondent (patent proprietor) submitted a main and a first auxiliary request.

Claim 1 of the main request reads as follows:

"1. A composition for coating a metal substrate which is intended to be fabricated and overcoated, said composition comprising a silica binder, characterized in that the pigment volume concentration is between 35% and 65%, the ratio of the pigment volume concentration to the critical pigment volume concentration of said composition is smaller than 1, and in that the binder comprises an aqueous silica sol and, optionally, a minor amount of alkali metal silicate, with the silica and/or silicate particles having an average size larger than 10 nm, and in that said binder has a $\text{SiO}_2/\text{M}_2\text{O}$ mole ratio of at least 6:1, wherein M represents the total of alkali metal and ammonium ions."

Claim 1 of the first auxiliary request differs from claim 1 of the main request only in that the feature of claim 6 as granted "the silica binder has a pH of 9.5 to 11" has been added.

Claim 1 of the second auxiliary request differs from the content of claim 1 of the first auxiliary request only in that the feature of granted claim 5 has been introduced (silica average particle size ranging from 10 to 16 nm).

VI. The arguments of the respondent (patent proprietor) can be summarised as follows:

- a) Novelty should be acknowledged, since the specific range for the amount of PVC, namely between 35% to 65% was not disclosed in document (1). This applied also to auxiliary request 1 in which a pH range was introduced as a further distinguishing feature.
- b) The coatings of the present invention had better adhesion properties and the film obtained was stronger than the coatings of document (1).
- c) No film strengthening solution was required in the patent in suit contrary to document (1).
- d) No incentive could be found in document (1) to formulate a coating having a PVC:CPVC < 1.
- e) An average particle size range larger than 10 nm was not preferred in document (1).
- f) Document (1) was silent as to the amount of PVC.

g) It was neither disclosed nor suggested in document (1) that the combination of the above features e) to g) would lead to the improved adhesion properties and the improved film strength.

h) In view of the previous reasons and in view of the absence of mention of a pH range in document (1), auxiliary request 1 was also inventive. Similarly, auxiliary request 2 was also inventive, since a further feature had been added.

VII. The appellant (opponent) requested that the decision under appeal be set aside and that European patent No. 1425353 be revoked.

VIII. The respondent (patent proprietor) requested that the appeal be dismissed (main request) or, alternatively, that the patent be maintained on the basis of the first auxiliary request filed with the statement of grounds of appeal, or on the basis of the second auxiliary request filed during the oral proceedings.

IX. At the end of the oral proceedings, the decision of the board was announced.

Reasons for the Decision

1. The appeal is admissible.

2. Novelty

Main request - claims 1 and 13

- 2.1 Claim 1 discloses several features which characterise the claimed coating compositions. To deny the novelty of the said coating compositions, it must be shown that these features are already disclosed in combination in the prior art. Example 8 of document (1) (see page 16, line 10) discloses a silica-containing coating compositions having particle size higher than 10 nm, having a $\text{SiO}_2/\text{M}_2\text{O}$ mole ratio higher than 6:1 and containing a silica sol (Ludox[®] AM). However, Table 2a on page 18 shows that the said silica sol has a ratio PVC/CPVC (pigment volume concentration / critical pigment volume concentration) of 1.3 rather than <1 as required for the compositions of present claim 1. As a consequence, the subject-matter of claim 1 is novel. Decision T 0871/08, cited by the appellant in this context, does not apply to the present case. In said decision a molar ratio of 2.996:1 was rounded up to 3:1 in order to obtain the same level of accuracy as the subject-matter defined in the claims. However, rounding the ratio PVC/CPVC of 1.3 down to 1 would amount to a diminution of about 25% in the present case. It is not plausible, and in fact the appellant has not argued in that direction, that the methods for determining the ratio PVC/CPVC are so inaccurate that margins of error of 25% would have to be taken into account. Therefore, defining said ratio with a level of accuracy including one digit behind the comma is in the present case not only justified but even necessary for an adequate definition of the claimed invention.

2.2 The above reasoning applies *mutatis mutandis* to the subject-matter of claim 13. As a consequence, the subject-matter of the main request meets the requirements of Article 54 EPC.

3. Inventive step

Main request - claim 1

3.1 The claimed subject-matter relates to silica-containing coating compositions to be used on metal substrates.

3.2 Document (1) relates to metal coating compositions (see page 1, line 5) which can contain an aqueous silica as silica binder (see page 4, line 13). Furthermore, the coating compositions of document (1) have a particle size of the colloidal silica ranging from 3 to 100 nm and a SiO₂/M₂O mole ratio of at least 25:1 (see page 4, lines 18 to 21). Moreover, the PVC (pigment volume concentration), which can represent up to 70%, e.g. from 25 to 55% by volume of the coating (see page 7, lines 1 to 2), is preferably at least equal to the CPVC (critical pigment volume concentration) and the ratio PVC/CPVC can range from 1 to 1.5 (see page 7, lines 13 to 15). In addition thereto, the coating compositions show improved adhesion to substrates and form a film that resists blister initiation (see page 3, lines 23 to 25). Consequently, all the features of the claimed coating compositions are disclosed in document (1) except for the ratio PVC/CPVC <1.

3.3 Hence, the problem underlying the patent in suit can be formulated in the provision of coating compositions having improved adhesion to substrates and improved film strength to resist blister initiation (see [0006] of the patent in suit). The board notes that this

problem was formulated in identical terms in document (1) (see page 3, lines 23 to 29).

- 3.3.1 The respondent argued that by comparing the results obtained by example 8 of document (1) (see Table 2a on page 18) with the results summarised in Table 1 of the patent in suit, an improvement of the wet double rub scores for the compositions according to the patent in suit can be acknowledged.

When comparative data are used to show the presence of an alleged improvement, the jurisprudence of the EPO makes it clear that in order to be convincing this comparison should be made in such a way that the alleged effect results from the distinguishing feature(s) between the claimed subject-matter and the disclosure of the closest prior art. These distinguishing features concern in particular the ratio PVC/CPVC (see point 2.1 above) and a specific disclosure of the PVC in combination with the remaining features of the claim. However, example 8 of document (1) (see page 16, line 15) contains Ludox[®] AM whereas the results of Table 1 of the patent in suit are obtained with compositions containing another silica sol, namely Ludox HS-40. Moreover, the amount of these binders are different in example 8 and in the patent in suit (see page 15, Table on the top of the page, 25.8% by weight and page 6, line 55, 41.43% by weight of the patent in suit). It should also be added that example 8 of document (1) contains Satintone which is absent in the compositions of the example 1 of the patent in suit.

Moreover, example 1f of Table 1 of the patent in suit is not comprised in the ambit of claim 1. It differs from the other coatings listed in Table 1 in that the

PCV is higher than 65% and the ratio PVC/CPVC is higher than 1. Although an improvement of the wet double rub is noticeable for examples 1d and 1e (according to claim 1), there is no improvement for examples 1c and 1b and even a worse performance for example 1a.

Hence, the alleged improvement is not present over the whole claimed scope (see examples 1a to 1c).

- 3.4 For all these reasons, the board concludes that the problem mentioned in point 3.3 was not solved.
- 3.5 Thus, the problem underlying the patent in suit can be seen in the provision of alternative coating compositions.
- 3.6 In view of the examples of the description, the board considers that this problem has been solved. However, the proposed solution cannot be regarded as inventive as explained below.
- 3.6.1 Document (1) describes compositions in which the different features can vary broadly without impairing the final properties, namely the making of a composition able to coat metallic substrates. These compositions can contain a binder which is preferably based on an aqueous silica sol (see page 4, line 13). The particle size can vary from 3 to 100 nm and the SiO_2 / M_2O mole ratio varies preferably from 25:1 to 220:1 (see page 4, lines 18 to 22), the ratio PVC/CPVC is **preferably** equal to one (see page 7, lines 13 to 15), this means that it can also be lower and the PVC can vary from 10 to 90% by volume of the coating (see page 6, lines 30 to 32). Therefore, the person skilled in the art seeking to solve the problem mentioned in point 3.5 would try to vary the different features of the

coating compositions of document (1) within the values given in this document to obtain further primer coatings for coating metal substrate and would thus arrive at the claimed subject-matter without exercising any inventive ingenuity.

- 3.6.2 The respondent claimed that the word "or" (see page 7, line 1) implies that other constituents might be present in the coating compositions of document (1) and that the ratio PVC/CPVC was ranging from 1 to 1.5 in document (1) (see page 7, lines 13 to 15) whereas it was lower than 1 in the claimed invention. Such a value could be easily measured (see page 3, [0008] of the patent in suit).

It is true that other constituents might be present in the coating compositions described in document (1). Such other constituents are however not excluded for the coating compositions as claimed in claim 1 of the patent in suit, since the said compositions comprise specific constituents without excluding the presence of other constituents. As to the value of the ratio PVC/CPVC, document (1) recites that it can preferably be 1 and thus does not exclude values below 1. The respondent's arguments thus do not support an inventive step.

- 3.6.3 As a further argument, the respondent put forward that the PVC range from 35% to 65% was not suggested in document (1).

In view the fact that the problem to be solved merely concerns the provision of an alternative (see point 3.5), the selection of a range of from 35% to 65% from the wider range of 10% to 90% cannot establish an inventive step.

3.6.4 Finally the respondent also asserted that the combination of the specific PVC range with the ratio PVC/CPVC lower than 1 was not specifically disclosed in document (1).

The board agrees with this assertion but since no improvement and/or unexpected effect can be linked to this specific combination of features (see also points 3.6.1 to 3.6.3 above), this combination cannot render the claimed alternatives non-obvious in view of the disclosure of document (1).

3.7 The board thus concludes that the subject-matter of claim 1 of the main request lacks an inventive step.

Auxiliary request 1 - claim 1

3.8 As compared to the main request, claim 1 of auxiliary request 1 contains the additional feature that the silica binder has a pH of from 9.5 to 11. The respondent still contended that the examples of the patent in suit show an improvement for the claimed coating compositions. It also further added that document (1) did not recognize that the value of the pH has an effect on the improvement obtained by the claimed coating compositions and that, finally, the combination of the features of claim 1 was neither disclosed nor suggested in document (1).

As to the alleged improvement of the claimed coating compositions, the board affirms its conclusions (see point 3.3.1 above) and considers that any argument based on an alleged improvement is moot. As a consequence, the problem defined in point 3.5 above also applies to claim 1 of auxiliary request 1. The

disclosure on page 6 lines 7 to 9 of document (1) shows that the pH value can range from 7 to 10,5 and thus overlaps with the range of claim 1 (9,5 to 11). It is true that the specific combination of features of claim 1 is not disclosed in document (1)- the board notes that if it was the case the claimed subject-matter would not be novel - however, the person skilled in the art seeking alternative coating compositions (see point 3.5 above) would select the pH in the range mentioned in document (1) and would arrive at the claimed subject-matter without inventive skills.

3.9 Claim 1 of auxiliary request 1 lacks an inventive step.

Auxiliary request 2 - claim 1

3.10 This request was filed during oral proceedings and its admissibility is left at the discretion of the board.

3.10.1 It differs from the wording of claim 1 of auxiliary request 1 only in that the feature of claim 5 as granted (colloidal silica particles with an average particle size between 10 and 16 nm) has been introduced into claim 1 thus overcoming an objection based on Article 123(2) raised for claim 1 of auxiliary request 1. This amendment does not increase the complexity of the case. The subject-matter of this request does not diverge from the one of the previous requests and therefore does not require that the oral proceedings be postponed. Hence, the board admitted this request into the proceedings.

3.11 As with the previous requests, the respondent relied on an alleged improvement to support the presence of an inventive step.

3.11.1 This alleged improvement was not shown by any comparative data (see points 3.3.1 and 3.9 above). As a consequence, the problem defined in point 3.5 above also applies to claim 1 of auxiliary request 2. Furthermore, the particle size for the colloidal silica ranges from 3 to 100 nm in document (1) (see page 4, lines 18 to 19) thus including the particle size mentioned in claim 1 (from 10 to 16 nm). Hence, applying the same reasoning as in points 3.1 to 3.9, the person skilled in the art would arrive at the claimed invention without inventive ingenuity.

3.12 Claim 1 of auxiliary request 2 lacks 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:



M. Schalow

A. Lindner

Decision electronically authenticated