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**Datasheet for the decision  
of 25 June 2024**

**Case Number:** T 0840/22 - 3.3.02

**Application Number:** 16732798.0

**Publication Number:** 3303483

**IPC:** C09D5/00

**Language of the proceedings:** EN

**Title of invention:**  
MULTILAYER COATED METAL SUBSTRATES

**Patent Proprietor:**  
PRC-Desoto International, Inc.

**Opponent:**  
Akzo Nobel Coatings International BV

**Relevant legal provisions:**  
RPBA 2020 Art. 13(1)  
EPC Art. 56

**Keyword:**  
Amendment to appeal case  
Inventive step

**Decisions cited:**  
G 0002/21, T 1989/19



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Case Number: T 0840/22 - 3.3.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.02**  
**of 25 June 2024**

**Appellant:** Akzo Nobel Coatings International BV  
(Opponent) Christian Neeferstraat 2  
1077 WW Amsterdam (NL)

**Representative:** Akzo Nobel IP Department  
Christian Neefestraat 2  
1077 WW Amsterdam (NL)

**Respondent:** PRC-Desoto International, Inc.  
(Patent Proprietor) 12780 San Fernando Road  
Sylmar, California 91342 (US)

**Representative:** f & e patent  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
1 February 2022 concerning maintenance of the  
European Patent No. 3303483 in amended form.**

**Composition of the Board:**

**Chairman** M. O. Müller  
**Members:** A. Lenzen  
L. Bühler

## Summary of Facts and Submissions

I. The present decision concerns the appeal filed by the opponent (appellant) against the opposition division's decision (decision under appeal) according to which European patent No. 3 303 483 (patent) in amended form meets the requirements of the EPC.

II. The following documents, filed before the opposition division, are relevant to the present decision:

D2 US 5,069,805

D4 US 2012/0025142 A1

D9 Test report - filed by the patent proprietor (respondent) with its reply to the notice of opposition (7 pages)

D10 Test report - filed by the appellant with its letter dated 16 March 2021 (3 pages)

D11 Test report - filed by the respondent with its letters dated 6 September 2021 (pages 1 to 3) and 23 November 2021 (corrected page 3)

D12 Test report - filed by the respondent with its letter dated 6 September 2021 (7 pages)

III. With its reply to the statement of grounds of appeal, the respondent filed, *inter alia*, the set of claims of auxiliary request 4 and the following documents:

A21 Email exchange between the respondent and Evonik (3 pages)

A24 Corrected version of table 2 of D12

IV. With its letter dated 12 June 2023, the respondent filed, *inter alia*, the set of claims of auxiliary request 4a.

V. With its letter dated 24 May 2024, the respondent filed the following document:

A27 Affidavit of Mr J. Martin

VI. In preparation for the oral proceedings, arranged at the parties' request, the board issued a communication pursuant to Article 15(1) RPBA.

VII. Oral proceedings before the board were held on 25 June 2024 by videoconference in the presence of both parties. During the oral proceedings, the respondent made auxiliary request 4a its main request. At the end of the oral proceedings, the Chair announced the order of the present decision.

VIII. The parties' requests relevant to the present decision at the end of the oral proceedings were as follows.

The appellant requested that the decision under appeal be set aside and that the patent be revoked in its entirety. It also requested that its submission "*that it is impossible that the tests in D9 were repeated with Ancamide 2050 instead of Ancamide 2569, as stated by Respondent*" (see the appellant's letter dated 17 April 2024, page 2, second paragraph) be admitted and that, on account thereof, D12 and A24 be disregarded.

The respondent requested that the patent be maintained in amended form based on the set of claims of the main request, filed as auxiliary request 4a with its letter dated 12 June 2023.

- IX. Summaries of the parties' arguments concerning the admittance and allowability of the main request as well as important aspects of the decision under appeal are contained in the reasons for the decision.

### **Reasons for the Decision**

Main request - Admittance (Article 13(1) RPBA)

1. The main request on appeal was filed as auxiliary request 4a with the respondent's letter dated 12 June 2023 (see point VIII. above). The appellant requested that it not be admitted.

In order to distinguish more easily between the main request on appeal and the main request on which the decision under appeal was based, the former will continue to be referred to in this section as auxiliary request 4a.

2. Together with its reply to the statement of grounds of appeal, the respondent filed, *inter alia*, the set of claims of auxiliary request 4. Claim 1 of auxiliary request 4 reads:

*"A multilayer coated metal substrate comprising:*

- (a) a metal substrate;*
- (b) a first curable film-forming composition applied to said metal substrate, wherein the first curable film-forming composition comprises:*
  - (1) a curable, organic film-forming binder component; and*
  - (2) a corrosion inhibiting component; and*
- (c) a second curable film-forming composition applied on top of at least a portion of the*

*first curable film-forming composition; wherein the second curable film-forming composition comprises:*

- (1) a curable, organic film-forming binder component that is the same as or different from the curable, organic film-forming binder component in the first curable film-forming composition; and*
- (2) a corrosion inhibiting component wherein a lithium compound comprising lithium silicate is in one film-forming composition and a thiazole, a diazole, an imidazole, an oxazole, a tetrazole or triazole is in the other film forming [sic] composition."*

3. According to the above claim 1, the corrosion-inhibiting component in the two film-forming compositions can thus be the same.
4. This is contrary to claim 1 of the main request, which was deemed allowable by the opposition division. According to claim 1 of the main request, the corrosion-inhibiting component in the two film-forming compositions has to be different.
5. During the oral proceedings, the question of whether auxiliary request 4 was reconcilable with the principle of the prohibition of *reformatio in peius* was raised for the first time by the board. The board observed that, should a patent be maintained on the basis of claim 1 of auxiliary request 4, which, unlike claim 1 of the main request held allowable by the opposition division, no longer required the corrosion-inhibiting components in the first and second film-forming compositions to be different, the appellant would be put in a worse position than if it had not appealed.

This would violate the principle of the prohibition of *reformatio in peius*.

6. The board's new objection amounts to exceptional circumstances within the meaning of Article 13(2) RPBA. This objection is addressed and - as it has not been contested by the appellant - remedied by auxiliary request 4a, claim 1 of which specifies that the corrosion-inhibiting component in the two film-forming compositions has to be different (for the wording of claim 1, see point 9 below).
  
7. Had the respondent filed auxiliary request 4a during the oral proceedings, therefore, it would have had to be found admissible under Article 13(2) RPBA. The fact that auxiliary request 4a was not actually filed during the oral proceedings but had, instead, been filed earlier cannot go against the respondent.
  
8. This conclusion is not changed by the appellant's arguments.
  
- 8.1 In its argumentation against the admittance of auxiliary request 4a in the oral proceedings, the appellant based its arguments solely on the fact already pointed out by the opposition division in its written preliminary opinion, namely that wording such as that chosen in auxiliary request 4 allowed both corrosion-inhibiting components to be the same. Therefore, auxiliary request 4a should have been filed before the opposition division in reaction to this fact and should not be admitted under Article 12(6) RPBA.

However, even if this is accepted, it does not change the above conclusion. More specifically, even if a request is inadmissible at a certain point in time

under a certain provision, the same request may become admissible at a later stage, for example due to an amendment of an appeal case, as described above with respect to the board's objection based on the principle of the prohibition of *reformatio in peius*.

- 8.2 In the written proceedings, the appellant had not objected to the admittance of auxiliary request 4a. In fact, it had only submitted an admittance objection against auxiliary request 4, namely that objections under Article 56 EPC had already been raised in the notice of opposition and that, therefore, auxiliary request 4 should have been filed before the opposition division in response to these objections (Article 12(6) RPBA).

Auxiliary request 4a contains the same list of specific corrosion-inhibiting components as auxiliary request 4. Even if, in view of this same list of corrosion-inhibiting components, it is assumed - in the appellant's favour - that the admittance objection against auxiliary request 4 must also be examined with regard to auxiliary request 4a, this is not convincing. In the present case, both parties continued to submit various experimental data until shortly before the oral proceedings before the opposition division (appellant: D10; respondent: D9, D11 and D12). In particular, the respondent submitted experimental tests in D11, which were clearly intended to refute the only tests submitted by the appellant (D10). In the board's view, the filing of the respondent's experimental data in the present case constitutes an appropriate response to the appellant's inventive-step objections and, in the circumstances of the present case, the respondent could not have been expected to file various auxiliary



requests in order to address the inventive-step objections.

Main request - Inventive step (Article 56 EPC)

9. The wording of claim 1 is reproduced in full below:

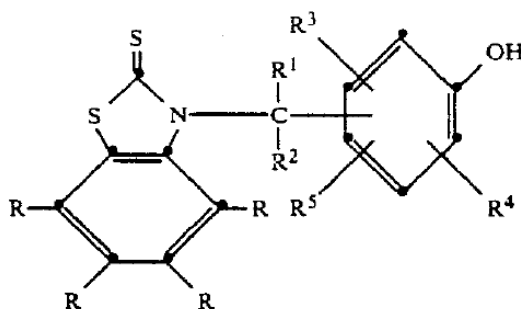
*"A multilayer coated metal substrate comprising:*  
*(a) a metal substrate;*  
*(b) a first curable film-forming composition applied to said metal substrate, wherein the first curable film-forming composition comprises:*  
*(1) a curable, organic film-forming binder component; and*  
*(2) a corrosion inhibiting component; and*  
*(c) a second curable film-forming composition applied on top of at least a portion of the first curable film-forming composition; wherein the second curable film-forming composition comprises:*  
*(1) a curable, organic film-forming binder component that is the same as or different from the curable, organic film-forming binder component in the first curable film-forming composition; and*  
*(2) a corrosion inhibiting component that [sic] different from the corrosion inhibiting component in the first curable film-forming composition, wherein a lithium compound comprising lithium silicate is in one film-forming composition and a thiazole, a diazole, an imidazole, an oxazole, a tetrazole or a triazole is in the other film forming [sic] composition."*

Thus, in short, claim 1 relates to a metal substrate coated with two curable film-forming compositions on top of the other,

- wherein each curable film-forming composition comprises a corrosion-inhibiting component,
- wherein the corrosion-inhibiting components in both compositions are different and
- wherein one curable film-forming composition comprises lithium silicate and the other composition comprises a thiazole, a diazole, an imidazole, an oxazole, a tetrazole or a triazole.

10. The appellant put forward that the subject-matter of claim 1 lacked an inventive step starting from D2 as the closest prior art.

11. D2 (column 1, lines 9 to 13 and lines 35 ff) relates, *inter alia*, to coating compositions comprising compounds of the following formula (I) as corrosion inhibitors (the definition of the different groups being omitted for the sake of brevity):



These corrosion inhibitors are added primarily to a base coating layer but may additionally be added to a top or an intermediate coating layer (D2, column 12, lines 55 to 59).

12. Distinguishing features

12.1 The appellant argued that a compound according to formula (I) above was a thiazole within the meaning of claim 1. It further considered that D2 directly and unambiguously disclosed a metal substrate having two coating layers on top of the other, each coating layer comprising a corrosion inhibitor according to formula (I) above.

12.2 In view of the above, the appellant concluded that the subject-matter of claim 1 differed from D2 only in that (i) the corrosion-inhibiting components in both layers were different and in that (ii) one coating layer comprised lithium silicate as a corrosion-inhibiting component.

12.3 In favour of the appellant, the board assumes in the following paragraphs that this is correct.

13. Technical effect and objective technical problem

13.1 The respondent referred to the experimental data of D12 and A24.

13.1.1 D12 is a full test report. It indicates the materials used (table 1), the compositions of the coating formulations to be applied to a metal substrate (table 2), the conditions used to treat the metal substrate prior to coating (tables 3 to 6), the corrosion rating scale (table 7) and the results of testing the coated metal substrates under corrosive conditions (table 8).

A24 only contains a corrected version of table 2 of D12.

13.1.2 In the oral proceedings, the board had stated that it understood the submission of A24 to mean that, apart from page 2 showing table 2, all pages of D12 were to be included in A24. This understanding was not disputed by either party. Against this background, documents D12 and A24 are hereinafter referred to as "combined document D12/A24".

In view of this, the respondent's request for table 2 of D12 to be corrected under Rule 139 EPC in line with table 2 shown in A24 was no longer relevant.

13.2 In combined document D12/A24, two film-forming compositions are successively applied to a metal substrate in order to obtain a multilayer coated metal substrate.

Comparative example 2B of this combined document represents an embodiment in which the corrosion-inhibiting component is the same in both film-forming compositions - namely mercaptobenzothiazole. This embodiment corresponds to the teaching of D2 - see above.

In example 2B of the combined document, the first film-forming composition comprises lithium orthosilicate, the second one mercaptobenzothiazole. Examples 1B and 3B to 6B differ from example 2B only in that the thiazole is replaced by a diazole, a triazole, a tetrazole, an oxazole or an imidazole. These examples are according to claim 1. Compared to the multilayer coated metal substrate of comparative example 2B, those of examples 1B to 6B have a higher corrosion resistance (table 8). Therefore, it can be concluded that the

multilayer coated metal substrate of claim 1 has higher corrosion resistance than that of D2.

- 13.3 Starting from D2 as the closest prior art, therefore, the objective technical problem is to provide a multilayer coated metal substrate which has higher corrosion resistance.
14. The appellant did not agree with the objective technical problem set out above. It presented two lines of argument, which will be dealt with in turn below under points 15 and 16.
15. Reliance on the technical effect in view of G 2/21
  - 15.1 The appellant argued that the application as filed disclosed two equivalent embodiments, the corrosion-inhibiting components in the two curable film-forming compositions being the same in one of the embodiments and differing from each other in the other embodiment. However, it was not derivable from the application as filed that the latter embodiment was superior in terms of corrosion resistance. This had been demonstrated by the respondent only after the effective date of the patent. Therefore, in view of G 2/21 (order No. 2), the respondent could not rely on the technical effect of improved corrosion resistance.
  - 15.2 This is not convincing. Against the background of the application as filed in its entirety, the board has no doubt that the multilayer coated metal substrate of claim 1 is corrosion-resistant. Also, this was never contested by the appellant. In other words, the technical effect of corrosion resistance is derivable from the application as filed for the subject-matter of claim 1 (this being equivalent to saying that the

technical effect of corrosion resistance meets the requirements of order No. 2 of G 2/21 when relied on for inventive step for the subject-matter of claim 1).

This being the case, it must be possible - contrary to the views of the appellant and the opposition division - for the respondent to rely on an improvement in the derivable effect, at least in the case of an improvement over a piece of prior art such as D2 in the present case. In this respect, the board agrees with T 1989/19 (point 3.3.16 of the Reasons).

The fact to which the appellant took offence, namely that one of several embodiments disclosed in the application as filed turns out to be better after the effective date with respect to the technical effect set out in the application as filed than the other embodiments disclosed in the application as filed, does not change this conclusion. The board points out that this scenario is precisely what regularly occurs in patents/patent applications in the field of chemistry, where claimed subject-matter must be limited at the expense of subject-matter disclosed in the application as filed as part of the invention, because the effect relied on for inventive step over the closest prior art is not achieved across the entire breadth of the claimed subject-matter.

16. Credibility of D12 and A24

16.1 According to the appellant, it was not credible that A24 described the compositions that had been tested in D12 and had produced the results described in D12. Therefore, D12 and A24 should not be considered at all for the assessment of inventive step.

- 16.2 In order to better understand this objection, it is expedient to first set out the history of the case in chronological order.
- 16.2.1 The respondent filed test report D9 before the opposition division. This report uses, *inter alia*, the polyamide curing agent Ancamide<sup>®</sup> 2569.
- 16.2.2 The appellant criticised D9. Since Ancamide<sup>®</sup> 2569 was not commercially available, the tests described in D9 were not reproducible and D9 should not be taken into consideration.
- 16.2.3 On 6 September 2021, still before the opposition division, the respondent filed test report D12. In the accompanying letter, the respondent explained that it related to a repetition of the tests carried out in D9 using the commercially available product Ancamide<sup>®</sup> 2050 instead of Ancamide<sup>®</sup> 2569. The respondent also stated that it had received the information about the possible replacement of Ancamide<sup>®</sup> 2569 by Ancamide<sup>®</sup> 2050 on request from the supplier of the Ancamide<sup>®</sup> products.
- 16.2.4 D12 indicates that the coated metal substrates were stored in a corrosive environment for 504 hours, i.e. 21 days, to test their corrosion resistance.
- 16.2.5 With the reply to the statement of grounds of appeal, the respondent filed A24. A24 contains a corrected version of table 2 of D12. With the reply, the respondent also filed A21, an email exchange between the respondent and the supplier of the Ancamide<sup>®</sup> products. Said exchange took place on 26 August 2021. The respondent's email to the supplier reads as follows:

"...

*Can you please recommend a commercially available polyamide that would perform similarly to Ancamide 2569?*

..."

The supplier replied as follows:

"...

*Some products similar to Ancamide 2569 would be Ancamide 2050, Ancamide 2445 and Ancamide 2830. They are all excellent curing agents for metal primers - with good barrier properties for corrosion performance.*

..."

The respondent explained that A21 was filed in support of an argument already presented in the oral proceedings before the opposition division, namely that the skilled person could contact the supplier of the Ancamide<sup>®</sup> products to obtain information about a possible substitute for Ancamide<sup>®</sup> 2569.

16.2.6 In its letter dated 17 April 2024, the appellant argued that the chronological course of events around D9, D12 and A21 had to lead to the conclusion that the tests in D12 had, in fact, never been conducted by the respondent (this is set out again in more detail below, also taking into account the appellant's submissions made during the oral proceedings before the board).

16.2.7 In reply, the respondent filed A27. In this affidavit, Mr Martin sets out the course of events around the email exchange with the supplier of the Ancamide<sup>®</sup> products and D12. The relevant part reads as follows:



*"When it was realized that Ancamide® 2569 was no longer commercially available, prior to execution of the experiments described in D12 and [A24], the supplier was contacted by telephone to identify possible replacements for said product, at which time the supplier orally suggested Ancamide® 2050. Using this product, the first and second coating compositions set out in the Table of [A24] were prepared. The first coatings were applied onto the substrate panels specified in D12 on June 8, 2021 and allowed to dry overnight. The second coatings were applied on June 9, 2021. The panels cured at ambient temperature until June 21, 2021 on which date they were scribed and put into salt spray testing as described in D12. After 504 hours of salt fog exposure, the panels were evaluated on July 12, 2021.*

*After completion of the experiments, Evonik was contacted by email on August 26, 2021 to confirm that Ancamide® 2050 was an appropriate replacement for Ancamide® 2569."*

- 16.3 The appellant's arguments presented in its letter dated 17 April 2024 and in the oral proceedings before the board can be summarised as follows.

The respondent received the email response from the supplier of the Ancamide® products on 26 August 2021. If it had been true that the corrosion tests lasted at least 21 days, as was stated in D12, D12 could have been filed at the earliest 21 days after 26 August 2021, i.e. on 16 September 2021. However, D12 was filed already on 6 September 2021. This showed that, contrary to the respondent's statement, the tests in D12 could not be a repeat of D9 using Ancamide® 2050

instead of Ancamide<sup>®</sup> 2569. The affidavit A27 described the events differently. In particular, it was asserted for the first time that the supplier of Ancamide<sup>®</sup> 2569 had been contacted by telephone prior to execution of the tests described in D12 and A24, and that the emails in A21 were a written confirmation of the earlier telephone enquiry. However, the emails in A21 made no reference to an earlier telephone inquiry. Nor did they contain any indication that confirmation was being requested or that they should be regarded as such. All this showed that the tests in D12 had, in fact, never been conducted by the respondent, which was not acting in good faith. D12 and A24 should be disregarded.

16.4 This is not convincing. The appellant's argument assumes that the respondent only learned of the possible replacement of Ancamide<sup>®</sup> 2569 with Ancamide<sup>®</sup> 2050 with the supplier's email reply of 26 August 2021 (A21) and that the tests in D12 could only have been started after that. However, at no time did the respondent allege that the supplier's email reply was a key factor in starting the tests in D12. In the letter accompanying D12, the respondent merely stated that the supplier had been contacted. The form in which this took place remained completely open. The board does not consider it unusual that desired information is requested in advance by telephone (see A27) in an ongoing business relationship, as in the present case between the respondent and the supplier of the Ancamide<sup>®</sup> products. As far as this prior telephone enquiry is concerned, A27 merely supplements the respondent's previous position, but does not contradict it.

The fact that the respondent contacted the supplier again, but in writing (A21), to confirm that

Ancamide<sup>®</sup> 2050 is indeed a possible substitute for Ancamide<sup>®</sup> 2569 is not considered unreasonable by the board - especially in view of the criticism previously expressed by the appellant with regard to D9. It may be surprising that no reference is made in the emails to the previous telephone enquiry. However, this does not prove that the respondent's submission is incorrect. In view of the fact that the respondent submitted an affidavit which otherwise does not give rise to any doubts, the board does not consider the missing reference to the earlier telephone enquiry to be sufficient for it to refute the claim that the tests described in D12 were carried out with the compositions of A24 and that, using these compositions, the results of D12 were obtained.

16.5 As can be seen from the above, the board took into account the appellant's submission that it was not possible that the tests in D9 had been repeated in D12 with Ancamide<sup>®</sup> 2050 instead of Ancamide<sup>®</sup> 2569 and that, because of this, D12 and A24 had to be disregarded. However, the board did not find this convincing. It was therefore not necessary to decide during the oral proceedings on the appellant's request to admit its submission.

17. Obviousness

17.1 As far as obviousness is concerned, the appellant only ever argued that a less ambitious problem, namely to provide a mere alternative to D2, did not involve an inventive step. No arguments were put forward as to why the solution of the more ambitious objective technical problem formulated above did not involve an inventive step. For this reason alone, an inventive step is to be acknowledged.

- 17.2 Notwithstanding the above, an inventive step must also be recognised if the appellant's arguments based on D4, which were put forward in connection with the less ambitious objective technical problem, are taken into account.
- 17.2.1 D4 relates to coating compositions for metal substrates wherein the coating compositions comprise a water soluble lithium salt as a corrosion inhibitor (D4, paragraph [0024], claim 19). D4 also suggests including one or more additional corrosion inhibitors such as potassium silicate, calcium strontium phosphosilicate, strontium zinc phosphosilicate or azoles such as thiazoles (D4, paragraph [0028]).
- 17.2.2 Against this background, the appellant essentially submitted that the suitability of lithium silicate as a corrosion inhibitor was also apparent to the skilled person from D4 (first argument). The combination of lithium silicate with thiazoles, which were also corrosion inhibitors according to D4, would have led the skilled person taking into account D2 as the closest prior art in an obvious way to the subject-matter of claim 1 (second argument).
- 17.2.3 Even assuming that the appellant's first argument is correct, the appellant's second argument fails to recognise that the subject-matter of claim 1 is not a mere combination of lithium silicate with a thiazole. Instead, claim 1 provides for a particular arrangement of the two corrosion-inhibiting components in the two layers. D4 does not provide the skilled person with any indication that lithium silicate and thiazoles should be arranged in the manner envisaged in claim 1, let alone with the aim of improving corrosion resistance.

17.3 It can be concluded that the subject-matter of the sole claim 1 of the main request involves an inventive step. The main request is allowable.

## 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 with claim 1 of the main request, which was filed as auxiliary request 4a with the letter dated 12 June 2023, and a description to be possibly adapted thereto.

The Registrar:

The Chairman:



H. Jenney

M. O. Müller

Decision electronically authenticated