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**Datasheet for the decision
of 27 September 2018**

Case Number: T 0060/14 - 3.2.03

Application Number: 05730221.8

Publication Number: 1736566

IPC: C23C14/34, B32B15/08

Language of the proceedings: EN

Title of invention:

METHOD OF APPLYING COATINGS WITH A METALLIC OR CERAMIC FINISH

Patent Proprietor:

IHI Hauzer Techno Coating B.V.

Opponent:

Strassburg, Volker

Headword:

Relevant legal provisions:

EPC Art. 123(2), 54(2)

RPBA Art. 13(1)

Keyword:

Amendments - extension beyond the content of the application
as filed (yes)

Novelty - selection invention (no)

Late-filed auxiliary requests - request clearly allowable (no)

Decisions cited:

T 2619/11, G 0001/93, G 0002/10, G 0011/91

Catchword:



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Case Number: T 0060/14 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 27 September 2018

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
22 October 2013 concerning maintenance of the
European Patent No. 1736566 in amended form.

Composition of the Board:

Chairman G. Ashley
Members: B. Miller
G. Weiss

Summary of Facts and Submissions

- I. European patent No. 1 736 566 relates to a method of applying a chromium coating on an article.
- II. An opposition was filed against the patent, based on the grounds of Article 100(b) and (c) EPC and of Article 100(a) EPC together with both Articles 54 and 56 EPC.

In an interlocutory decision the opposition division decided that the patent in amended form based on the first auxiliary request submitted with the letter dated 6 August 2013 fulfilled the requirements of the EPC.

- III. The appellant (opponent) filed an appeal against this decision and requested that the decision under appeal be set aside and the patent be revoked.
- IV. The respondent requested that the appeal be dismissed (main request) and subsidiarily, that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the auxiliary requests 1 to 3 submitted with the response to the appeal which correspond to the 3rd, 5th and 7th auxiliary requests filed with letter dated 6 August 2013 or on the basis of the auxiliary requests 4 or 5 filed with letter dated 22 August 2018.
- V. The sole independent claim according to the main request reads (amendments compared to claim 1 as filed in bold):

"Method of applying a coating with **an electrolytic chromium finish metallic or ceramic finish** to all or part of the surface of a thermoplastic, metallic or metal alloy article, **comprising consisting of** the following steps:

- (a) preparing the thermoplastic, metallic or metal alloy article **by cleaning and drying the cleaned article;**
- (b) applying on said article a **photosensitive** polymeric layer based on aqueous dispersions of resins that are free of volatile organic components or dispersions in organic solvents of resins that are free of urethane;
- (c) curing said polymeric layer; and
- (d) depositing a single layer of a metallic ~~or ceramic~~ material on the article coated with the cured polymeric layer **by**
 - (i) **exposing to a vacuum the article coated with the cured polymeric layer; and**
 - (ii) **depositing a single layer of a metallic material by a vapor deposition technique on said article coated with the cured polymeric layer and exposed to a vacuum;**

characterized in that the curing of said polymeric layer of step (c) is performed **at a temperature between 30 and 80 °C in the case of thermal polymeric layers, or by ultraviolet radiation in the case of photosensitive polymeric layers** and in that the **metallic material is chromium.**"

Claims 2 to 6 of the main request relate to preferred embodiments of the method according to claim 1.

Claim 1 of auxiliary request 1 corresponds to claim 1 of the main request wherein process step a) reads (further amendment emphasised in bold)

"(a) preparing the thermoplastic, metallic or metal alloy article by cleaning **the article with organic solvents** and drying the cleaned article".

Claim 1 of auxiliary request 2 corresponds to claim 1 of the main request wherein process step a) reads (further amendment emphasised in bold)

"(a) preparing the thermoplastic, metallic or metal alloy article by cleaning **the article by ethanol baths in an ultrasound washer** and drying the cleaned article".

Claim 1 of auxiliary request 3 corresponds to claim 1 of the main request wherein the article is defined to be a **thermoplastic** article.

Claim 1 of auxiliary request 4 corresponds to claim 1 of auxiliary request 1 wherein in step (a) the expression "with organic solvents" is replaced with "**by organic solvents**", wherein in step (b) it is further defined that the polymeric layer is applied "**by a conventional deposition technique**" and wherein in step d) the expression "a single layer" is replaced by "a single **nanometric** layer".

Claim 1 of auxiliary request 5 corresponds to claim 1 of auxiliary request 4 wherein the article is further defined as an article **"of acrylonitril-butadiene-styrene or of acrylonitril-butadiene-styrene-polycarbonate type copolymer"**.

VI. State of the art

The following document cited in the contested decision and referred to during the appeal proceedings is relevant for this decision:

E5: JP 06 93545 - including an English translation of relevant passages

VII. With the summons to oral proceedings, the Board sent a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating to the parties its preliminary, non-binding opinion of the case.

VIII. Oral proceedings were held on 27 September 2018.

IX. The appellant's arguments, as far as relevant for this decision, can be summarised as follows.

The technical teaching of claim 1 of the main request went beyond the teaching of the application as originally filed, since a method "consisting of" the combination of method steps defined in claim 1 was not derivable from the application as originally filed, contrary to the requirements of Article 123(2) EPC.

The subject-matter of claim 1 of the main request was not novel with respect to the disclosure of E5. The term "consisting of" in claim 1 of the main request did

not exclude further method steps being performed after the last method step defined in claim 1.

The arguments concerning Article 123(2) EPC applied in the same manner to claim 1 of each of auxiliary requests 1 to 5.

Auxiliary requests 4 and 5 were filed late by the respondent and should not be admitted into the proceedings.

- X. The respondent's respective arguments can be summarised as follows.

The term "comprising" in claim 1 as originally filed included the possibility that the method consisted only of the steps defined in claim 1. Moreover, the application as filed did not describe further method steps. Therefore it provided a direct and unambiguous teaching for a method consisting of the steps defined in claim 1 of the main request.

The combination of process steps defined by claim 1 of the main request was directly and unambiguously derivable from the dependent claims and in addition from paragraph [0039] of the application as originally filed, in particular when considering the examples and the general teaching of the application as a whole.

The subject-matter of claim 1 of the main request was novel with respect to the disclosure of E5, since the term "consisting of" excluded further method steps being performed after the last method step defined in claim 1. Moreover, several selections within the disclosure of E5 were necessary to arrive at claim 1 of the main request.

With respect to claim 1 of each auxiliary request 1 to 3 in principle the same argument as for claim 1 of the main request applied.

The method defined in claim 1 of auxiliary request 4 was directly based on the teaching of paragraph [0039] in combination with the overall general teaching of the application as originally filed.

The subject-matter of claim 1 of auxiliary request 5 further defined the material of the thermoplastic material in line with the teaching of paragraph [0021] and the examples as filed.

Auxiliary requests 4 and 5 addressed the arguments concerning Article 123(2) EPC as submitted by the appellant and the points raised in the provisional opinion of the Board presented in the annex to the summons. Therefore these requests should be admitted into the proceedings.

Reasons for the Decision

1. Main request - Article 123(2) EPC
- 1.1 The amendments to claim 1 as originally filed indicated above in point V can be summarised as
 - i) selecting a coating with an electrolytic chromium finish,
 - ii) specifying in more detail how to prepare the article in step b) of the method,
 - iii) selecting a photosensitive polymeric layer and the corresponding curing step,
 - iv) selecting the conditions for applying the chromium single layer in step d) of the method.
 - v) excluding the presence of further process steps by changing the term "comprising" into "consisting of".

The Board cannot find a direct and unambiguous teaching of this new combination of process steps in the application as originally filed.

- 1.2 The respondent argues that the combination of features defined by claim 1 of the main request is derivable from claim 1 and
 - a) dependent claims 2, 7, 9 and 13;
 - b) paragraph [0039] as originally filed, in particular when taking into account the examples and the overall teaching of the application as filed such as found in paragraphs [0017], [0032] and [0037].

- 1.3 Dependent Claims as a Possible Basis for the Amendments
- 1.3.1 Each of the dependent claims 2, 7, 9 and 13 as filed is dependent on claim 1 only. Therefore the claims as filed do not provide an explicit basis for the claimed combination of features.
- 1.3.2 Concerning the amendment of the expression "comprising" to "consisting of", there is no indication in the claims as filed that further process steps, such as a conventional etching/coating/priming treatment on the article or on the polymer layer, can be excluded when applying a chromium layer on a UV-cured polymer layer.
- 1.3.3 By reference to T 2619/11 the respondent argues, that disproportionately focusing on the structure of the claims as filed to the detriment of the subject-matter that the skilled person would directly and unambiguously derive from the application as a whole should be avoided.
- 1.3.4 The basic principle when applying Article 123(2) EPC was established in the jurisprudence of the Enlarged Board of Appeal and summarised and confirmed in the decision G 2/10 (OJ EPO 2012, 376, point 4.3). The Enlarged Board of Appeal considered that an amendment can only be made within the limits of what a skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of these documents as filed, see G 11/91, OJ EPO 1993, points 1, 1.3 and 3 of the Reasons.
- 1.3.5 The present Board observes that whether subject-matter has been added in the sense of Article 123(2) EPC can only be decided on the basis of the facts of each

individual case (see G 1/93, OJ EPO 1994, 541, Reasons, point 17). While the conclusion T 2619/11 may well be correct when applied to the particular factual situation underlying this decision, the present Board does not consider that any further general principle can be derived from this decision.

On the contrary, the reasoning underlying T 2619/11 corresponds to the general principles underlying G 2/10, since the Board considered the dependent claims as filed in the context of the description of the application, after which it came to a conclusion as to what was "directly and unambiguously disclosed to the skilled person" (see point 2.8 of the Reasons).

1.3.6 Moreover, the facts in T 2619/11 do not correspond to the facts underlying the present case, since the dependent claims discussed in T 2619/11 do not provide independent alternatives for different features of claim 1 and the amended claim 1 in question does not define a new combination of these alternatives.

1.3.7 In the present case, contrary to the situation in T 2619/11, the application as originally filed including the description does not provide any technical teaching which guides the skilled person to the conclusion that the features disclosed in the dependent claims as individual embodiments should be combined as defined in claim 1, see below in point 1.4.

1.4 The Description as a Possible Basis for the Amendments

1.4.1 Paragraph [0039] of the application as filed describes some of the steps defined in claim 1. However, according to the method described in paragraph [0039] a nanometric layer of metallic or ceramic material is

applied on the cured polymer. Therefore the method described in this paragraph does not inevitably require that a single layer of chromium is applied. This is confirmed by the further teaching in the following paragraphs where it is described that a ceramic layer having a thickness of 10 to 300 nm (paragraph [0040]) or a ruthenium layer having a thickness of 20 to 500 nm (paragraph [0041]) can be applied onto the polymer layer

The general teaching in paragraph [0039] corresponds to the "object of the invention" indicated in paragraph [0018] which is defined as to obtain a metallic or ceramic finish to an article.

Therefore the method described in paragraph [0039] as filed encompasses the possibility that a chromium finish is obtained but does not unambiguously suggest to the skilled person that it should be read in the context of "the specific case of coatings with an electrolytic chromium finish" addressed in paragraph [0017] as filed when further choosing a photosensitive polymer layer in step b).

- 1.4.2 Furthermore, paragraph [0039] does not disclose all of the process steps defined in claim 1 of the main request. The respondent argues that the skilled person would read this paragraph in the context of the remaining description, in particular in combination with paragraphs [0017], [0023], [0032] and [0037].

However, taking into account expressions such as "in the specific case of", "In a particular embodiment", "In another particular embodiment" the process steps in said paragraphs are presented as particular options

without any teaching guiding the skilled person to a specific combination.

- 1.4.3 Even if paragraph [0039] is read in the context of the teaching of paragraph [0032], concerning the specific conditions of the deposition step d) and of paragraph [0037] concerning the preparing step a), it does not provide any teaching to the skilled person that any further process steps, such as a conventional etching/coating/priming treatment on the article or on the polymer layer, can be excluded when providing an article with a chromium finish by applying a chromium layer directly on a UV-cured polymer layer.

Therefore, paragraph [0039] does not provide any hint to the skilled person that the application as a whole directly and unambiguously aims at a method as defined by claim 1 of the main request.

- 1.4.4 The examples of the application do not fall within the scope of claim 1 of the main request and hence cannot form a basis for the amendments. According to examples 1 and 2 a heat-cured polymer and not a UV-cured polymer is applied in step b) of the method according to claim 1. Example 2 furthermore provides a ruthenium layer and not a chromium layer as required by claim 1. It is also not apparent from the examples that further method steps can be excluded when applying a chromium layer on a UV-cured polymer layer.

- 1.5 Concerning the change of the term "comprising" to "consisting of" in claim 1 as filed, the respondent argues in particular that the application as originally filed does not describe any further process steps; it is therefore implicit that the method can be performed without requiring further method steps.

However, the fact that the description such as in paragraph [0039] describes in general terms a method for providing any type of metallic or ceramic coating with certain process steps does not lead to the conclusion that further conventional process steps are excluded when applying a chromium layer on a UV-cured polymer.

The respondent stressed in this context that the examples of the application would demonstrate that a wear and corrosion resistant chromium coating could be obtained without any further process steps.

However, as indicated above, the examples describe a method wherein a layer of a heat-curing polymer is applied and cured by heat before a layer of chromium or ruthenium is applied. The examples provide no teaching concerning articles having a chromium finish obtained by directly applying a chromium layer on a UV-cured polymer.

Moreover, paragraph [0053] of the application teaches that numerous variations and modifications are possible within the method as described, clearly indicating that further conventional process steps are not excluded.

1.6 In summary, the Board concludes that the application as filed does not provide a direct and unambiguous teaching for the combination of the following features:

- applying a photosensitive polymer layer on an a cleaned article and
- applying directly a chromium single layer on the UV-cured polymer layer
- in the absence of any further method steps (consisting of).

Therefore the technical teaching of the subject-matter of claim 1 of the main request extends beyond the teaching of the application as originally filed, contrary to the requirements of Article 123(2) EPC.

2. Main request - Article 54 EPC

2.1 E5 discloses in paragraphs [0009] to [0011] a process for providing a metallic finish on an article. Before the application of the base coat, a cleaning step is performed (paragraph [0009]). Since the conventional cleaning step mentioned in E5 makes use of a solvent such as CFC (chlorofluorocarbons) or trichloroethylene in case of an ultrasonic cleaning, a further drying step is also implicitly disclosed, since the solvent has to be dried off.

The base coat is then sprayed onto the cleaned surface (paragraphs [0009] and [0010]). It is formed from a resin comprising as a first component "unsaturated polyester or (meth)acrylates, that is, polyester acrylate, epoxy acrylate, urethane acrylate, or the like", in combination with an oligomer and a photoinitiator (paragraph [0010]).

These polymers thus used for the base coat are only soluble in an organic solvent. An organic solvent in general does not contain urethane. Thus, E5 discloses a base coat comprising unsaturated polyester or (meth)acrylates, wherein two (polyester acrylate or epoxy acrylate) of three polymeric materials specified in E5 meet the requirements of step b) of claim 1 of the main request.

On this base coat a layer of a metal such as Cr is deposited by a vapor deposition technique (paragraph [0011] of E5).

Therefore E5 describes in the embodiment disclosed in paragraphs [0009] to [0011] a method comprising the steps a) to d) as defined in claim 1 of the main request wherein only chromium has to be selected from a list of equivalent metals.

2.2 According to the teaching of E5 (claim 1, paragraph [0012]) a further topcoat is applied on the metal coating.

The respondent argues that the application of a topcoat is excluded by the wording of claim 1 of the main request due to the term "consisting of".

However, claim 1 of the main request defines a method of applying a coating with an electrolytic chromium finish. Once a chromium layer has been applied to an article and a chromium finish has thus been obtained, the method according to claim 1 is fulfilled.

The wording of claim 1 though does not exclude that any further process steps are performed once the chromium finish has been achieved. In the Board' s judgment, the term "consisting of" implies that the chromium finish is achieved by steps a) to d) as defined in claim 1 and only excludes any further method steps between steps a) to d).

Therefore the application of a top coat according to the disclosure in E5 is not excluded by the wording of claim 1 of the main request.

Hence, the subject-matter of claim 1 of the main request cannot be distinguished from the method disclosed in E5 and lacks novelty, contrary to the requirements of Article 54 EPC.

3. Auxiliary requests 1 to 3

The combination of features indicated in point 1.7 above is present in claim 1 of each of auxiliary requests 1 to 3. Therefore the reasons presented above in point 1 for claim 1 of the main request apply in the same manner to claim 1 of each of auxiliary requests 1 to 3.

Therefore each of the auxiliary requests 1 to 3 does not fulfil the requirements of Article 123(2) EPC.

4. Admissibility of auxiliary requests 4 and 5

4.1 With the summons to attend oral proceedings, the Board sent a communication pursuant to Articles 15(1) and 17(2) of the Rules of Procedure of the Boards of Appeal (RPBA) indicating its preliminary, non-binding opinion of the case.

In response to the communication of the Board the respondent filed auxiliary requests 4 and 5 with a letter dated 22 August 2018.

These requests are therefore late filed and are admitted and considered at the Board's discretion (Article 13(1) RPBA).

4.2 The respondent argues that claim 1 of auxiliary request 4 exactly reflects the wording of paragraph [0039].

However, as indicated above in point 1.4.1 to 1.4.3, paragraph [0039] does not provide a direct and unambiguous disclosure that a chromium finish can be

obtained by applying a UV-curable polymer directly on a cleaned article and applying a chromium layer directly on the UV-cured polymer layer in the absence of any further process steps.

4.3 Concerning the combination of features indicated above in point 1.7 therefore the same considerations as for claim 1 of the main request apply to claim 1 of auxiliary request 4.

4.4 Claim 1 of auxiliary request 5 corresponds to claim 1 of auxiliary request 4 wherein the material of the article is further defined.

The further selection of the polymeric material of the article from the list of materials disclosed in paragraph [0021] as filed does not change the argument presented above for claim 1 of the main request.

4.5 Hence, it becomes evident that claim 1 of auxiliary requests 4 and 5 does not overcome the deficiency pursuant to Article 123(2) EPC.

By exercising its discretion under Article 13(1) RPBA the Board therefore does not admit auxiliary requests 4 and 5 in the appeal proceedings.

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. Spira

G. Ashley

Decision electronically authenticated