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**Datasheet for the decision
of 29 September 2015**

Case Number: T 1217/13 - 3.3.05
Application Number: 06733653.7
Publication Number: 1841706
IPC: C03C17/34, C03C17/36, B32B17/10
Language of the proceedings: EN

Title of invention:

HEAT TREATABLE COATED ARTICLE WITH ZIRCONIUM SILICON
OXYNITRIDE LAYER(S) AND METHODS OF MAKING SAME

Patent Proprietors:

Centre Luxembourgeois de Recherches pour le Verre
et la Céramique S.A. (C.R.V.C.)
Guardian Industries Corp.

Opponent:

SAINT-GOBAIN GLASS FRANCE

Headword:

Heat treatable article/Centre Luxembourgeois de Recherches

Relevant legal provisions:

EPC Art. 84, 123(2), 123(3), 69(1)
RPBA Art. 13(1), 13(3)

Keyword:

Clarity of the claims -
main request and auxiliary request 0A (no)
Late-filed auxiliary requests - admitted (yes)
Amendments - auxiliary request 0A' - added subject-
matter (no) - broadening of claim (no)
Remittal to the department of first instance - (yes)

Decisions cited:

T 1511/07

Catchword:



**Beschwerdekammern
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Case Number: T 1217/13 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 29 September 2015

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 15 March 2013
revoking European patent No. 1841706 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman G. Raths
Members: A. Haderlein
 P. Guntz

Summary of Facts and Submissions

- I. The present appeal lies from the decision of the opposition division to revoke European patent EP 1 841 706. The patent in suit concerns a heat-treatable coated article with zirconium silicon oxynitride layers, and methods of making same.
- II. The opposition division found that none of the requests submitted by the patent proprietors complied with Article 123(2) EPC.
- III. With the statement of grounds of appeal dated 23 July 2013, the patent proprietors (appellants) filed a main and three auxiliary requests.
- IV. In a communication, the board raised objections under Articles 84 and 123(2) EPC.
- V. The appellants filed auxiliary requests 0A, 2A, 2B, 4 and 5.
- VI. At the oral proceedings on 29 September 2015 before the board, the appellants filed auxiliary requests 0A' and 2A'.
- VII. Claim 1 of the main request and the sole claim of auxiliary requests 0A and 0A' read as follows (amendments with respect to the main request underlined or struck through):

Main request

"1. A coated article including a coating supported by a glass substrate (1), the coating comprising:
a first dielectric layer (2);

an infrared (IR) reflecting layer (3;3') located on the substrate (1) over at least the first dielectric layer (2); and
a layer comprising zirconium silicon oxynitride (5) $ZrSiO_xN_y$ located on the substrate over at least the IR reflecting layer (3;3') and the first dielectric layer (2), wherein a ratio of nitrogen/oxygen y/x in the zirconium silicon oxynitride (5) is from about 1 to 25 and wherein the layer comprising zirconium silicon oxynitride (5) has a thickness in the range from about 20 to 400 Å, and wherein a Zr/Si ratio (atomic percent) in the layer comprising zirconium silicon oxynitride (5) is from about 10.0 to 50.0."

Auxiliary request 0A

"1. A coated article including a coating supported by a glass substrate (1), the coating comprising:
a first dielectric layer (2);
an infrared (IR) reflecting layer (3;3') located on the substrate (1) over at least the first dielectric layer (2); and
a layer comprising zirconium silicon oxynitride (5) $ZrSiO_xN_y$ located on the substrate over at least the IR reflecting layer (3;3') and the first dielectric layer (2), wherein a ratio of nitrogen/oxygen y/x in the zirconium silicon oxynitride (5) is from about 1 to 25 and wherein the layer comprising zirconium silicon oxynitride (5) has a thickness in the range from ~~about 20~~20 to ~~400~~250 Å, and wherein a Zr/Si ratio (~~atomic percent~~) in the layer comprising zirconium silicon oxynitride (5) is from ~~about 10.0~~8.0 to ~~50.0~~18.0 atomic percent."

Auxiliary request 0A'

"1. A coated article including a coating supported by a glass substrate (1), the coating comprising:
a first dielectric layer (2);
an infrared (IR) reflecting layer (3;3') located on the substrate (1) over at least the first dielectric layer (2); and
a layer comprising zirconium silicon oxynitride (5) $ZrSiO_xN_y$ located on the substrate over at least the IR reflecting layer (3;3') and the first dielectric layer (2), wherein an atomic ratio of nitrogen/oxygen y/x in the zirconium silicon oxynitride (5) is from about 1 to 25 and wherein the layer comprising zirconium silicon oxynitride (5) has a thickness in the range from ~~about 2050~~ to ~~400250~~ Å, and wherein a Zr/Si atomic ratio (~~atomic percent~~) in the layer comprising zirconium silicon oxynitride (5) is from ~~about 10.08.0~~ to ~~50.018.0~~."

VIII. The arguments of the appellants can be summarised as follows:

Main request and auxiliary request 0A - clarity

For the skilled person it was clear that the expressions "Zr/Si ratio (atomic percent)" of claim 1 of the main request and "Zr/Si ratio atomic percent" of claim 1 of auxiliary request 0A referred to a ratio in which both the numerator and the denominator were expressed in atomic percent leading to a dimensionless number. It thus in fact referred to an atomic ratio. Support for this view was in paragraphs 0031, 0035 and 0036 of the patent in suit, corresponding to paragraphs 0027, 0030 and 0031 respectively of the application as

filed.

Auxiliary request 0A' - Article 123(2), (3) EPC

The sole claim of auxiliary request 0A' was based on originally filed claims 1 and 15 and paragraph 0027 of the description as filed. It was directly and unambiguously derivable from the latter passage that the Zr/Si ratio was an atomic ratio. Moreover, the two ranges incorporated into the claim were stated to be more preferred. Thus, there was a clear pointer towards the combination of these ranges in the application documents as filed.

In view of granted dependent claims 10 to 12, it was immediately clear that claim 1 as granted was also directed to coated articles having a Zr/Si atomic ratio different from 1. The requirements of Article 123(3) EPC were therefore met.

IX. The arguments of the respondent can be summarised as follows:

Main request - clarity

Claim 1 of the main request lacked clarity. The skilled person would construe the expression "atomic percent" as referring to a ratio expressed in percent and based on the number of atoms as opposed to weight-%. In contrast, according to the appellants it rather referred to a ratio of two values, each of which was expressed in atomic percent. While the latter interpretation could be inferred from paragraph 0027 of the application as filed, the first interpretation was equally plausible for the skilled person, leading to a lack of clarity.

Admissibility of auxiliary request 0A

Auxiliary request 0A was late-filed. While its claim 1 was more restricted than claim 1 of the main request it was not *prima facie* allowable. In particular, it did not overcome the objections under Article 123(2) EPC raised by the board in its communication. Thus, auxiliary request 0A should not be admitted by the board.

Auxiliary request 0A - clarity

The submissions with respect to clarity of claim 1 of the main request also applied to claim 1 of auxiliary request 0A.

Admissibility of auxiliary request 0A'

Auxiliary request 0A' was late-filed and should not be admitted into the proceedings since it was not *prima facie* allowable. In particular, it did not appear to overcome the objections raised by the respondent under Article 123(2) EPC. Moreover, the appellants had provided no adapted description. In view of the amendments made in claim 1 of this request, the description needed to be adapted in order to comply with the requirements of Article 84 EPC. In the absence of such an adapted description, auxiliary request 0A' should not be admitted into the proceedings.

Auxiliary request 0A' - Article 123(2) and (3) EPC

The sole claim of auxiliary request 0A' was broader than the combination of the features disclosed in table 1 of the application as filed. The basis for the amendments, i.e. paragraph 0027 of the application as

filed, referred to the embodiment shown in Figure 1. Layer (5) of this embodiment was "made of", i.e. consisted of, zirconium silicon oxynitride. Layer (5) of the article of the sole claim of auxiliary request 0A' was however said to "comprise" zirconium silicon oxynitride. For this reason alone, the requirements of Article 123(2) EPC were not met. Moreover, three ranges were combined in said claim, but there was no pointer to such a combination in the application as filed, as required by T 1511/07.

The requirements of Article 123(3) EPC were not complied with. Claim 1 as granted was directed to zirconium silicon oxynitride $ZrSiO_xN_y$ and, thus, to a zirconium silicon oxynitride having a Zr/Si atomic ratio of 1. Claim 1 of auxiliary request 0A' was directed to a coated article having a Zr/Si atomic ratio of 8.0 to 18.0 and, thus, to a Zr/Si ratio different from 1.

Remittal to the opposition division

The board should examine the ground of opposition of sufficiency of disclosure prior to remitting the case to the opposition division for further prosecution. It should decide on that ground on the basis of the submissions made in writing before the opposition division. The respondent had requested remittal to the opposition division since the grounds of novelty and inventive step had not been discussed at the oral proceedings before the opposition division. It had therefore requested remittal only for novelty and inventive step, not for sufficiency of disclosure.

X. Requests

The appellants (patent proprietors) requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the main request as submitted on 23 July 2013 or, in the alternative, on the basis of auxiliary request 0A or auxiliary request 0A' as submitted on 26 August 2015 and at the oral proceedings before the board on 29 September 2015, respectively, or on the basis of one of the other auxiliary requests 1, 2, 2A, 2A', 2B, 3, 4 and 5.

The respondent (opponent) requested that the appeal be dismissed.

Reasons for the Decision

1. Main request - clarity

1.1 Claim 1 has been amended and now includes the expression "Zr/Si ratio (atomic percent)". The amendment with respect to this feature is based on the description.

The skilled person's normal understanding of this expression would be that the number of Zr atoms are put into relation with the number of Si atoms and that the obtained value is expressed in percent. For instance, a Zr/Si ratio of 2 atomic percent would amount to a Zr content of 2 Zr atoms per 100 Si atoms.

1.2 In contrast, the appellants contend that this expression referred to "the Zr content expressed in atomic percent per Si content expressed in atomic

percent". According to this interpretation, a Zr/Si ratio of 2 atomic percent would amount to a Zr content of 2 Zr atoms per 1 Si atom, i.e. twice as many Zr atoms as Si atoms. In the opinion of the appellants, the expression "Zr/Si ratio (atomic percent)" was therefore essentially to be construed as "Zr/Si atomic ratio". This was the interpretation to be adopted in view of the passage in paragraph 0027 as originally filed stating that at Zr/Si ratios of 2 to 50 or 10 to 15 "there is more (sic) Zr than Si in a layer of or including zirconium silicon oxynitride". Also, the first sentence of paragraph 0030 of the application as filed was a support for this interpretation.

1.3 In the opinion of the board, while this interpretation is possible in view of the cited passage in the description, it is at least not immediately clear from the literal wording of claim 1 and is inconsistent with other passages of the description such as the second sentence in paragraph 0030. Hence, the expression can thus be construed in at least two substantially different ways. This results in a lack of clarity of the claims. So the claims do not meet the requirement set forth in Article 84, first sentence, EPC.

2. Admittance of auxiliary request 0A

2.1 Since auxiliary request 0A was filed after the parties had been summoned to oral proceedings, it constitutes an amendment to the party's case within the meaning of Article 13(1) and (3) RPBA and its admittance was subject to the discretion of the board.

2.2 In the communication it issued in preparation for the oral proceedings, the board raised objections under Article 123(2) and 84 EPC with respect to the dependent

claims, to the combination of the ranges for the thickness and the Zr/Si ratio, to the expression "about" in relation with the thickness range and to the brackets for the expression "atomic percent".

- 2.3 Auxiliary request 0A was filed in a reaction to this communication. In this request, the dependent claims have been deleted, the ranges for the thickness and the Zr/Si ratio have been restricted to the more preferred ranges disclosed in paragraph 0027 of the application as filed, and the expression "about" which was present in the main request with respect to the thickness range has been removed, as have the brackets for the expression "atomic percent".

The objections raised under Articles 84 and 123(2) EPC in the communication of the board appeared therefore, at least on a *prima facie* basis, to have been overcome.

Moreover, these amendments did not raise any issues which the board or the respondent could not reasonably have been expected to deal with without adjournment of the oral proceedings. The board therefore exercised its discretion and admitted this request into the proceedings.

3. Auxiliary request 0A - clarity

Since the sole claim of auxiliary request 0A also contains the expression "atomic percent", the reasons for non-compliance of claim 1 of the main request with the requirements of clarity apply *mutatis mutandis* to the sole claim of auxiliary request 0A (see at 1.1 to 1.3 *supra*). So the claims do not meet the requirement set forth in Article 84, first sentence, EPC.

4. Admittance of auxiliary request 0A'
- 4.1 Since auxiliary request 0A' was filed after the parties had been summoned to oral proceedings, it constitutes an amendment to the party's case within the meaning of Article 13(1) and (3) RPBA and its admittance was subject to the discretion of the board.
- 4.2 The objections as to the meaning of the expression "ratio... atomic percent" were raised for the first time at the oral proceedings. Now, auxiliary request 0A' is based on auxiliary request 0A wherein the expression "a Zr/Si ratio is from... to... atomic percent" has been replaced by the expression "a Zr/Si atomic ratio is from ... to...".

As set out for auxiliary request 0A at 2. *supra*, the objections under Article 123(2) EPC appeared to have been overcome, at least on a *prima facie* basis.
- 4.3 According to the respondent, auxiliary request 0A' did not overcome the clarity objection as no adapted description had been provided. In view of the amendments made in claim 1 of this request, the description however needed to be adapted in order to comply with the requirements of Article 84 EPC.
- 4.4 The board is of the opinion that whether or not the description is adapted to the claims is primarily a question of support of the description as required by Article 84, second sentence, EPC and not necessarily a question of clarity of the claims as required by Article 84, first sentence, EPC. The fact that the description has not (yet) been adapted to a set of claims is therefore normally irrelevant when assessing

admissibility of such a set of claims.

4.5 The amendments also did not raise any issues which the board or the respondent could not reasonably have been expected to deal with without adjournment of the oral proceedings.

4.6 The board therefore exercised its discretion and admitted this request into the proceedings.

5. Auxiliary request 0A' - clarity

The meaning of the expression "atomic ratio" now incorporated in the sole claim of auxiliary request 0A' does not leave any doubt that the number of Zr atoms per Si atom is meant. For instance, a Zr/Si atomic ratio of 2 means that there are 2 Zr atoms per 1 Si atom. The board is therefore satisfied that the requirement of clarity of the claims set forth in Article 84, first sentence, EPC is met.

6. Auxiliary request 0A' - Articles 123(2) and 76(1) EPC

6.1 Claim 1 is based on originally filed claims 1 and 15 and includes in addition the following features:

(i) the layer comprising zirconium silicon oxynitride (5) has a thickness in the range from 50 to 250 Å, and

(ii) a Zr/Si atomic ratio in the layer comprising zirconium silicon oxynitride (5) is from 8.0 to 18.0.

6.2 It is uncontested that paragraph 0027 of the application as filed discloses both ranges as such.

6.3 According to the respondent, however, said passage referred to the embodiment depicted in Figure 1 and also referred to in Table 1. The layer (5) of this embodiment consisted of zirconium silicon oxynitride and did not only comprise zirconium silicon oxynitride.

The board is not convinced by this argument. In paragraph 0027 itself, reference is made to "a layer of or including (sic) zirconium silicon oxynitride". The board concludes from this passage that at least in paragraph 0027 the expression "a layer of zirconium silicon oxynitride" also has the same meaning of "a layer comprising zirconium silicon oxynitride".

6.4 Also according to the respondent, a clear pointer towards the combination of ranges now present in the claim was necessary in view of decision T 1511/07 in order to comply with Article 123(2) EPC. Such a clear pointer was however absent from the application documents as filed.

The board notes in this respect that the case underlying decision T 1511/07 was different from the one underlying the present decision in that a new sub-range was defined emerging from a combination of the lower value of the broadest range of a certain parameter with the upper value of an especially preferred range (see reasons 2.1).

In the present case, no such new sub-range is created since both ranges which are disclosed in paragraph 0027 and which are now incorporated in the claim are disclosed as such in said paragraph. Thus, the

conclusions drawn in T 1511/07 do not necessarily apply to the present case. Moreover, the board notes that both the ranges for the thickness and the range for the Zr/Si ratio are said to be more preferred (cf. "more preferably from...") in said passage. The application documents as filed thus contain a clear pointer to the combination of the ranges for the thickness and for the Zr/Si ratio.

6.5 The board also observes that the expressions "in certain example embodiments of this invention", "in an example", "in certain example instances" and "in certain example embodiments, an example...", used in paragraph 0027 of the application documents as filed, clearly and unambiguously introduce a passage that is to be considered a general disclosure. The skilled person reading this passage would not infer that these expressions had a more restricted meaning in the sense that a specific embodiment was meant, comprising, apart from the ranges disclosed, other specific features, since no such other features are mentioned in this passage.

6.6 It follows from the above that the patent has not been amended in such a way as to contain subject-matter which extends beyond the content of the application as filed.

The requirements of Article 123(2) EPC are complied with.

6.7 The above reasoning applies *mutatis mutandis* to the amendments with respect to the parent application. The requirements of Article 76(1) EPC are therefore met, too.

7. Auxiliary request 0A' - Article 123(3) EPC

7.1 In the opinion of the respondent, claim 1 as granted referred to zirconium silicium oxynitride wherein the atomic ratio of Zr/Si was equal to 1. This was apparent from the formula used in claim 1 as granted. In contrast, in claim 1 of auxiliary request 0A' the Zr/Si atomic ratio was different from 1, leading to an extension of protection in the sense of Article 123(3) EPC.

7.2 This argument must fail for the following reasons.

In order to determine the scope of protection, claim 1 as granted must be read in the context of the dependent claims (cf. Article 69(1) EPC: "...shall be determined by the claims (sic)"). In dependent claims 10 to 12 as granted, several values for the Zr/Si ratio of the zirconium silicon oxynitride layer are given, these values being different from an atomic ratio of 1.

It thus follows that the protection conferred by claim 1 as granted also covers coated articles whose zirconium silicon oxynitride layer has an atomic ratio different from 1.

7.3 Thus the board concludes that the sole claim of auxiliary request 0A' has not been amended in such a way as to extend the protection conferred. The requirements of Article 123(3) EPC are therefore met.

8. Remittal to the opposition division

8.1 The board observes that the opposition division revoked the patent for lack of compliance with Article 123(2) EPC only. In the notice of opposition, the

respondent had invoked the grounds of sufficiency of disclosure, novelty and inventive step.

8.2 Despite this, the respondent requests the board to also examine compliance with Article 83 EPC.

8.3 The board however does not accede to this request because the objection of lack of sufficiency was not substantiated during the appeal proceedings. In its reply to the grounds of appeal, the respondent only referred in general to the submissions made before the opposition division.

8.4 It is true, as contended by the respondent, that the appellants requested remittal to the opposition division for examination of the grounds of opposition of novelty and inventive step. This however does not amount to a request by the appellants to have the board also examine the ground of sufficiency of disclosure.

8.5 The board, therefore, exercises its discretion and, without examining compliance with the requirement of sufficiency of disclosure, remits the case to the opposition division for further prosecution.

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 for further prosecution on the basis of auxiliary request 0A'.

The Registrar:

The Chairman:



K.Götz-Wein

G. Rath

Decision electronically authenticated