Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 29 January 2025

Case Number: T 1428/23 - 3.3.05

Application Number: 16177756.0

Publication Number: 3141534

IPC: C03C17/34

Language of the proceedings: EN

Title of invention:
ARTICLES INCLUDING ANTICONDENSATION AND/OR LOW-E COATINGS AND/OR METHODS OF MAKING THE SAME

Patent Proprietor:
Guardian Glass, LLC

Opponent:
SAINT-GOBAIN GLASS FRANCE

Headword:
Anticondensation coating/Guardian

Relevant legal provisions:
EPC Art. 76(1)

Keyword:
Divisional application - extension beyond the content of the earlier application as filed (yes)

Decisions cited:
G 0002/10

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 1428/23 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 29 January 2025

Appellant: (Patent Proprietor)	Guardian Glass, LLC 2300 Harmon Road Auburn Hills MI 48326 (US)
Representative:	Hoyng Rokh Monegier B.V. Rembrandt Tower, 30th Floor Amstelplein 1 1096 HA Amsterdam (NL)
Respondent: (Opponent)	SAINT-GOBAIN GLASS FRANCE 18, avenue d'Alsace 92400 COURBEVOIE (FR)
Representative:	Saint-Gobain Recherche 41 Quai Lucien Lefranc 93300 Aubervilliers (FR)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 1 June 2023 concerning maintenance of the European Patent No. 3141534 in amended form.**

Composition of the Board:

Chairman	E. Bendl
Members:	G. Glod
	S. Fernández de Córdoba

Summary of Facts and Submissions

I. The patent proprietor's (appellant's) appeal lies from the opposition division's decision finding that European patent No. 3 141 534 B1 in amended form based on the then auxiliary request 7 met the requirements of the EPC.

II. With the statement setting out the grounds of appeal the appellant submitted a main request and ten auxiliary requests.

III. Only the claims relevant to the present decision are mentioned here.

Independent claim 5 of the main request reads as follows:

"*5. A coated article comprising:*
- *a coating supported by a substrate, wherein the coating is an anticondensation coating comprising the following thin-film layers deposited in the following order moving away from the first substrate:*

a silicon-inclusive barrier layer,
a first silicon-inclusive contact layer,
a layer comprising a transparent conductive oxide, TCO, wherein the TCO is of or includes Indium Tin Oxide, ITO,
a second silicon-inclusive contact layer, and
a layer of zirconium oxide."

Independent claim 5 of auxiliary request 1 also includes the underlined amendment at the end.

"*5. [...] a layer of zirconium oxide, wherein the anticondensation coating has a hemispherical emissivity of less than less than 0.23 and a sheet resistance of less than 30 ohms/square.*"

Independent claim 3 of auxiliary request 2 also includes the underlined amendment compared with claim 5 of auxiliary request 1.

"*5. [...] a layer of zirconium oxide, wherein the anticondensation coating is disposed on an exterior surface of the substrate such that the anticondensation coating is exposed to an external environment, wherein the anticondensation [...].*"

Independent claim 5 of auxiliary request 3 also includes the underlined amendments compared with claim 5 of the main request.

"*5. [...] a silicon-inclusive barrier layer having a thickness of 10-20 nm,*
a first silicon-inclusive contact layer having a thickness of 10-200 nm,
a layer comprising a transparent conductive oxide, TCO, having a thickness of 75-175 nm, wherein the TCO is of or includes Indium Tin Oxide, ITO,
a second silicon-inclusive contact layer having a thickness of 10-50 nm, and
a layer of zirconium oxide having a thickness of 2-15 nm."

Independent claim 5 of auxiliary request 4 includes the amendments to auxiliary requests 1 and 3.

Independent claim 3 of auxiliary request 5 includes the amendments to auxiliary requests 2 and 3, apart from the indication of the thickness of the zirconium oxide layer.

Independent claim 5 of auxiliary request 6 includes the underlined and struck-through amendment compared with claim 5 of the main request.

"5. [...] a first silicon-inclusive contact layer,
a layer comprising Indium Tin Oxide, ITO~~a transparent conductive oxide, TCO,~~
a second silicon-inclusive [...].

Independent claim 5 of auxiliary request 7 includes the amendments to auxiliary requests 1 and 6.

Independent claim 3 of auxiliary request 8 includes the amendments to auxiliary requests 2 and 6.

Independent claim 5 of auxiliary request 9 includes the amendments to auxiliary requests 3 and 6.

Independent claim 3 of auxiliary request 10 includes the amendments to auxiliary requests 2, 3 and 6.

IV. The appellant's arguments, insofar as they are relevant to the present decision, can be summarised as follows.

The requirements of Article 76(1) EPC were met for all requests.

It was evident from paragraphs [0011], [0029], [0034], [0038], [0058] and [0060] as well as figures 1 and 6 of the parent application that ITO (indium tin oxide) was the preferred TCO (transparent conductive oxide). The

disclosure at the end of paragraph [0011] would be recognised as a preferred option, similarly to a dependent claim. Paragraph [0038] disclosed alternative materials for the TCO, but it was evident that ITO was the preferred one. Additionally, ITO was only a choice from a single list.

The wording "certain example embodiments" found in paragraphs [0011] to [0014] and [0033] would establish a clear link between the ITO and the TCO. In addition, if the skilled person were asked to use a TCO based on the teaching of the overall parent application, they would directly and unambiguously use ITO.

V. The respondent's (opponent's) arguments are reflected in the Reasons for the Decision given below.

VI. At the end of the oral proceedings of 29 January 2025, the parties' requests were as follows.

The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of one of the main request or auxiliary requests 1 to 10, submitted with the grounds of appeal.

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

Reasons for the Decision

Main request

1. Article 76(1) EPC

In the present decision the board will concentrate on the so-called "second issue", relating to the specification of the transparent conductive oxide (TCO) layer as being of or including indium tin oxide (ITO). This amendment is, at least in claim 5, not directly and unambiguously derivable from the parent application (WO 2011/105991).

The appellant argues that it was directly and unambiguously derivable from the parent application that ITO was the preferred TCO, in particular from various paragraphs of the description and figures 1 and 6.

However, the board is not convinced by this argument. The current main request contains several independent claims clearly relating to different embodiments. Disclosure applying to one embodiment may not necessarily apply to a different embodiment. The fact that there are different independent claims confirms that their subject-matter is not meant to be based on the same common composition.

In paragraph [0011] of the parent application,, which relates to a skylight, the anticondensation coating is defined by four layers: one comprising silicon nitride and/or silicon oxynitride, one comprising a TCO, one comprising silicon nitride and one comprising at least one of zirconium oxide, zirconium nitride, aluminium

oxide, and aluminium nitride.

In paragraph [0012], which again relates to a skylight, the anticondensation coating is defined (differently) by five layers: a silicon-inclusive barrier layer, a first silicon-inclusive contact layer, a layer comprising a transparent conductive oxide (TCO), a second silicon-inclusive contact layer and a layer of zirconium oxide.

In paragraph [0013], the anticondensation coating is defined in the same way as in paragraph [0011] (four layers), while in paragraph [0014] the anticondensation coating is defined in the same way as in paragraph [0012] (five layers).

Figure 1 shows another coating with six layers: silicon nitride, titanium oxide, silicon oxynitride, ITO (or another TCO), silicon nitride and zirconium oxide.

The coating in figure 6 has four layers: silicon oxynitride, TCO (for example ITO), silicon nitride and one of zirconium oxide, aluminium oxide or aluminium oxynitride.

The coating in figure 7 has only three layers: silicon oxynitride, TCO (for example ITO) and silicon oxynitride.

The skilled person immediately realises that these coatings are not identical and have different degrees of specification and/or generality. In the embodiment in paragraph [0014], the outer layer is specified as zirconium oxide, which is not necessarily the case in paragraph [0013] and figure 6. Figure 7 does not have such a layer at all. Figure 1 also has zirconium oxide

as the outer layer, but it also contains a layer of titanium oxide and defined silicon layers, which again is different from the degree of specification found in paragraph [0014]. It is unambiguous that the different embodiments in paragraphs [0011] to [0014] are not supposed to originate from an identical basis, thereby having certain features in common. This is reflected by the fact that they are now claimed as different independent claims.

The basis for the sequence and denomination of layers given in claim 5 of the main request is undoubtedly paragraph [0014] of the parent application. Said paragraph does not further specify TCO. It is true that the end of paragraph [0011] of the parent application indicates that the TCO may be of or including ITO or the like *in certain example embodiments* of this invention (emphasis added). It is accepted that ITO would be recognised as a preferred option, as indicated by the appellant, like a dependent claim, albeit only for the embodiment disclosed in paragraph [0011]. It is not stated that ITO or a TCO including ITO is generally preferred independently of the composition of the anticondensation coating.

Paragraph [0012] of the parent application, which includes the layers from claim 5 of the now main request, does not specify the TCO, either.

In view of the different degrees of specification in the different embodiments, one possible interpretation by the skilled person from reading paragraphs [0011] and [0012] would be that, for embodiments having the sequence of layers as defined in claim 1 of the now main request, the TCO may be ITO or may include ITO. One example embodiment is the skylight. For a sequence

of layers as now defined in claim 5 without specifying the silicon-inclusive layers, there is no preferred option for TCO.

This interpretation is also in line with figures 1 and 6 and the corresponding paragraphs [0034] to [0038], in which the silicon-inclusive layers are clearly defined as SIN or SIO_xN_x, which involves ITO as the preferred TCO. A different conclusion is not reached when consulting paragraphs [0058] to [0060], which disclose partially or fully oxidised and/or nitrided layers for the silicon-inclusive layer and subsequently ITO as being preferred.

In other words, at the level of generality of the definition of the silicon layers as used in claim 5, there is no disclosure of a TCO being particularly preferred.

The appellant's argument that the wording "certain example embodiments" found in paragraphs [0011] to [0014] and [0033] would establish a clear link between ITO and the TCO is not convincing. The very same wording is used in paragraph [0038] when listing TCOs other than ITO (paragraph [0038], line 7). Furthermore, the parent application discloses different embodiments, and each embodiment is a specific combination of layers as indicated above, thereby representing a specific choice of features. *Additionally* choosing a specific TCO leads to a combination which has not been disclosed as such in the parent application.

It is evident from paragraph [0038] that the TCO to be chosen depends on the complete composition of the layer and on the process conditions. Therefore, there is some ambiguity with respect to the TCO to be chosen when the

anticondensation coating is defined very generally, as it is in claim 5.

The gold standard as set out in G 2/10 (point 4.3 of the Reasons) requires an unambiguous disclosure, which does not apply to at least claim 5 in the case in hand.

In summary, the board is not convinced that the parent application directly and unambiguously discloses a layer in which the TCO is of or includes ITO for the sequence and denomination of layers as set out in claim 5.

Therefore, the requirements of Article 76(1) EPC are not met and the main request must fail.

Auxiliary request 1

2. Article 76(1) EPC

Claim 5 of this request includes the same specification of TCO as claim 5 of the main request. Consequently, the same objection applies. The amendment made to claim 5 does not affect this conclusion, since there is no disclosure in the parent application that the claimed hemispherical emissivity and sheet resistance can only be obtained with a TCO that is of or includes ITO.

The requirements of Article 76(1) EPC are not met either and auxiliary request 1 also fails.

Auxiliary request 2

3. Article 76(1) EPC

Claim 3 of this request includes the same specification of TCO as claim 5 of the main request. It was uncontested that the feature added compared with claim 5 of auxiliary request 1 does not affect the specification of the TCO. Therefore, the same objection as for the higher-ranked requests still applies.

The requirements of Article 76(1) EPC are not met either and auxiliary request 2 also fails.

Auxiliary request 3

4. Article 76(1) EPC

Claim 5 of this request includes the same specification of TCO as claim 5 of the main request. In addition, its thickness is defined. This does not alter the conclusion reached for the main request concerning the allowability of the wording "wherein the TCO is of or includes Indium Tin Oxide, ITO".

The thickness of 75-175 nm is only defined in the parent application for the specific embodiment set out in paragraph [0037]. The question of whether it can be generalised to the much broader claim 5 does not need to be answered.

The requirements of Article 76(1) EPC are not met either and auxiliary request 3 also fails.

Auxiliary request 4

5. Article 76(1) EPC

This request is a combination of auxiliary requests 1 and 3. Consequently, claim 5 of this request suffers from the same deficiency as the higher-ranked requests.

The requirements of Article 76(1) EPC are not met either and auxiliary request 4 also fails.

Auxiliary request 5

6. Article 76(1) EPC

This request is a combination of auxiliary requests 2 and 3. Consequently, claim 3 of this request also suffers from the same deficiency as the higher-ranked requests.

The requirements of Article 76(1) EPC are not met either and auxiliary request 5 also fails.

Auxiliary request 6

7. Article 76(1) EPC

Claim 5 of this request includes the wording "a layer comprising Indium Tin Oxide, ITO". This does not overcome the objection raised for the main request. As set out above, ITO is not directly and unambiguously derivable from the parent application as preferred for the sequence and denomination of layers as set out in claim 5.

In addition, the omission of "transparent" now allows for the presence of non-transparent layers. The question of whether this has a basis in the parent application does not need to be answered.

The requirements of Article 76(1) EPC are not met either and auxiliary request 6 also fails.

Auxiliary request 7

8. Article 76(1) EPC

Claim 5 of this request includes the same specification of TCO as claim 5 of auxiliary request 6. Consequently, the same objection applies. As already indicated for auxiliary request 1, the amendment made to claim 5 does not affect this conclusion, since there is no disclosure in the parent application that the claimed hemispherical emissivity and sheet resistance can only be obtained with a layer comprising ITO.

The requirements of Article 76(1) EPC are not met either and auxiliary request 7 also fails.

Auxiliary request 8

9. Article 76(1) EPC

Claim 3 of this request includes the same specification of TCO as claim 5 of auxiliary request 6. The feature added compared with auxiliary request 7 does not impact the composition of the individual layers. Consequently, the same objection as for auxiliary request 7 applies.

The requirements of Article 76(1) EPC are not met either and auxiliary request 8 also fails.

Auxiliary request 9

10. Article 76(1) EPC

Claim 5 of this request includes the same specification of TCO as claim 5 of auxiliary request 6. In addition, the thickness is defined. This does not alter the conclusion reached for auxiliary request 6.

The thickness of 75-175 nm is only defined in the parent application for the specific embodiment set out in paragraph [0037]. The question of whether it can be generalised to the much broader claim 5 does not need to be answered.

The requirements of Article 76(1) EPC are not met either and auxiliary request 9 also fails.

Auxiliary request 10

11. Article 76(1) EPC

This request is a combination of auxiliary requests 8 and 9. Consequently, claim 3 of this request also suffers from the same deficiency as the higher-ranked requests.

The requirements of Article 76(1) EPC are not met either and auxiliary request 10 also fails.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Vodz E. Bendl

Decision electronically authenticated