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Datasheet for the decision of 22 October 2020

Case Number: T 2273/17 - 3.3.05

Application Number: 10010542.8

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Language of the proceedings: EN

Title of invention:
Limited visible transmission blue glasses

Applicant:
Vitro Flat Glass LLC

Headword:
Blue glasses/Vitro

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

Keyword:
Late-filed requests - suitability to resolve the issues (no)

Decisions cited:
T 0989/15, T 0584/17, T 0954/17

Catchword:

Europäisches Patentamt
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Beschwerdekammern

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Case Number: T 2273/17 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 22 October 2020

Appellant: (Applicant)	Vitro Flat Glass LLC 400 Guys Run Road Cheswick, PA 15024 (US)
Representative:	f & e patent Fleischer, Engels & Partner mbB, Patentanwälte Braunsberger Feld 29 51429 Bergisch Gladbach (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 17 May 2017 refusing European patent application No. 10010542.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

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

Summary of Facts and Submissions

I. The present appeal lies from the examining division's decision refusing European patent application No. EP 10 010 542.8. The examining division considered that neither the main request nor any of auxiliary requests 1 to 16 met the requirements of the EPC.

II. With the statement of grounds of appeal, the appellant submitted a main request, corresponding to the main request underlying the impugned decision, and three auxiliary requests. In addition, computer simulations based on example 44 of D4 (WO 99/58462 A2) and on examples 93 to 96 and 105 to 108 of the application were submitted.

III. In its communication under Article 15(1) RPBA 2020 of 5 March 2020, the board was of the preliminary opinion that, among other things, the requirements of Article 83 EPC were not met.

IV. In reply, the appellant submitted a new main request and new auxiliary requests 1 to 3.

Claim 1 of the main request is as follows:

"*1. A blue colored, infrared and ultraviolet radiation absorbing glass composition having a composition comprising a base glass portion comprising:*
SiO_2 66 to 75 percent by weight,
Na_2O 10 to 20 percent by weight,
CaO 5 to 15 percent by weight,
MgO 0 to 5 percent by weight,
Al_2O_3 0 to 5 percent by weight,

K_2O 0 to 5 percent by weight,
and a primary solar radiation absorbing and colorant portion comprising:
total iron (expressed as Fe_2O_3) from greater than 0.9 to 1.1 percent by weight,
FeO 0.15 to 0.65 percent by weight,
CoO 60 to 95 PPM,
Se present in an amount up to 15 PPM, and
TiO_2 0 to 0.9 percent by weight,
Nd_2O_3 0 to 3 percent by weight
the glass having a redox, that is the amount of iron in the ferrous state (expressed as FeO) divided by the amount of total iron (expressed as Fe_2O_3), in the range of 0.4 to 0.58 and wherein the glass has a luminous transmittance (LTA) as measured using C.I.E. standard illuminant "A" with a 2° observer over the wavelength range of 380 to 770 nanometers of 40% up to 60% at a thickness of 0.406 cm (0.160 inches), and a color characterized by a dominant wavelength in the range of 479 to 495 nanometers, and an excitation purity of at least 4% at a thickness of 0.406 cm (0.160 inches), as measured using C.I.E. standard illuminant "C" with a 2° observer, following the procedures established in ASTM E308-90."

Claim 1 of auxiliary request 1 contains the following amendments (highlighting inserted by the board):

"*1. [...] CoO 60 to 90 PPM, Se present in an amount up to 6 PPM, [...].*"

Claim 1 of auxiliary request 2 contains a minor editorial modification and the following amendment compared to claim 1 of the main request (highlighting inserted by the board):

"*1. [...] having a redox [...] in the range of greater than 0.4 to 0.58 [...].*"

Claim 1 of auxiliary request 3 includes the amendments of auxiliary requests 1 and 2.

V. Oral proceedings took place on 22 October 2020, during which it was discussed whether the new requests resolved the issues raised.

VI. The appellant's arguments which are relevant to the present decision can be summarised as follows:

Although there was no example falling within the scope of the claim, the skilled person knew, based on the concrete information in the general specification, how to achieve the desired spectral properties and prepare the suitable glass compositions. Clear guidance on which colorants to use and the influence of these primary colorants on the properties of the glass was given at the bottom of page 5 and at the top of page 6 of the specification. Specific guidance was moreover given on suitable amounts of these colorants, with the claimed ranges corresponding to a preferred practice as disclosed. In addition, with the preparation methods indicated, the skilled person had a clear teaching on how to obtain glasses with the desired properties. Should a specific composition exceptionally fail to exhibit the desired properties, the skilled person would vary the amounts of the colorants (within the claimed ranges) based on the indicated effects of the individual components.

Furthermore, examples 75 to 84, 101 to 104 or 113 to 115 would serve as a starting point for the skilled person. They could simply adapt the redox by using an

appropriate carbon-based reductant to arrive at the desired compositions. The teaching of the application was therefore sufficient to produce the claimed glass composition without undue burden. The requests should be admitted.

VII. The appellant requested that the decision under appeal be set aside and that a patent be granted based on the main request, or alternatively based on one of auxiliary requests 1 to 3, all these requests having been submitted with the letter dated 22 September 2020.

Reasons for the Decision

Main request

1. Article 13(1) RPBA 2020

The requests were submitted in reply to the communication pursuant to Article 15(1) RPBA 2020. Article 13(1) RPBA 2020 is applied in the current case (see Article 25 RPBA 2020 and T 989/15 (Reasons 16.2), T 584/17 (Reasons 1.2.10) and T 954/17 (Reasons 3.10)). The admission of the requests is at the board's discretion, which is exercised in view of *inter alia* "the suitability of the amendment to resolve the issues which were admissibly raised by another party in the appeal proceedings or which were raised by the Board".

In the present case, the amendments are *prima facie* not suitable for overcoming at least the objection under Article 83 EPC for the following reasons:

The established case law of the boards of appeal considers that the requirements of sufficiency of disclosure are met if the invention as defined in the

independent claims can be carried out by a person skilled in the art, using their common general knowledge, over the whole scope of the claim without undue burden (Case Law of the Boards of Appeal of the EPO, 9th edition, 2019, II.C.5.4).

Claim 1 relates to a glass composition comprising a base glass portion and a primary solar radiation absorbing and colorant portion. It is defined by the result to be achieved, meaning that the composition should be such that the desired properties (redox, LTA, colour and excitation purity) are obtained.

The question arises whether the application contains enough information to enable the person skilled in the art, using their common general knowledge, to obtain these properties without undue burden.

The application contains a large number of examples that were either obtained experimentally (Tables 1 and 3) or by computer modelling (Table 2). Nevertheless, none of the examples is according to claim 1 because of at least the differing redox.

The skilled person trying to obtain the desired redox of 0,4 to 0,58 knows that the ratio of FeO/Fe_2O_3 has to be adapted accordingly. Therefore reducing agents have to be added as required (page 11, line 13). At such high redox, iron polysulfides that have an effect on the dominant wavelength can form, and this needs to be compensated by other components (page 8, lines 19 to 25). The application is silent about the most appropriate reductants and does not provide any clear guidance as to how the compensation should be carried out.

The only teaching relating to the colours and the LTA in relation to the added colorant portion is on pages 5 to 6 of the application as filed. Although some information on the role of iron, cobalt, selenium and titanium is provided, it is also indicated that a proper balance between these components is required to obtain the desired properties (page 6, lines 7 to 10). Furthermore, the presence of other colorants is not excluded by the wording of claim 1 (see also page 7, lines 4 to 6) and neodymium oxide is explicitly recited in claim 1 as an optional component.

The skilled person trying to produce compositions according to claim 1 has no explicit example falling within the scope of the claim that could be used as a starting point for the production of different glasses according to claim 1. The compositions according to examples 75 to 84, 101 to 104 or 113 to 115 that only differ from the claimed composition by a considerably lower redox are not a good starting point for the production of desired compositions, since the application does not give clear guidance on how to adapt the redox (see above) and a change of redox would have a significant - albeit unknown and unquantifiable - impact on all the other properties. This is also confirmed by the computer simulations based on example 44 of D4, which corresponds to example 44 of the present application, showing *inter alia* that an increase in the redox of the specific composition results in a decrease in the LTA and the dominant wavelength (DW) and has an impact on further properties as well. It is also in line with the passage on page 6, lines 7 to 10 cited above and the appellant's argument that the properties of a glass composition generally depend on the entity of all colorant species in a

complex manner (statement of grounds of appeal, page 10, last paragraph, first sentence).

Starting from example 44, the skilled person would have to adapt the redox and the selenium content to the ranges claimed. As already indicated above, the computer simulations based on example 44 show a significant effect on the properties due to a change in redox. The examples of these simulations do not contain any selenium, but it is evident from the disclosure on page 6 (lines 3 to 6) and confirmed by the simulations based on examples 93 to 96 and 105 to 108 that selenium also affects the properties in question of the glass compositions. In addition, example 44 contains 90 ppm of CoO, which is already in the upper part of the range claimed.

Finding the right composition of the multi-component glass with the desired multitude of properties is thus not merely a matter of routine, but would require the person skilled in the art to conduct a large number of experiments. The application does not contain any clear guidance towards success in the event that a specific composition fails to have the desired properties. Although occasional lack of success is acceptable, in the present case there is no clear guidance as to what to do in the event of failure, so the skilled person can only arrive at the desired properties by trial and error. Furthermore, there is no evidence that the properties can be obtained over the whole range claimed.

In the present case where all the examples are in line with the teaching of the prior art, it is the applicant's duty to provide a clear and complete disclosure of the embodiments going beyond such

teaching and involving something more than the state of the art. Since such disclosure is lacking, the invention as defined in claim 1 cannot be considered to be sufficiently disclosed.

Consequently, there is no reason to admit the request into the proceedings.

Auxiliary request 1

2. The amendments made to claim 1 of auxiliary request 1 do not change the reasoning provided for claim 1 of the main request since the skilled person still has to rely on trial and error to obtain the desired compositions. The restriction of the ranges may possibly require fewer variations, but it does not allow the fundamental problem that the disclosure is insufficient with respect to the proper balance of the colorants to be solved.

Therefore this request is not admitted either.

Auxiliary request 2

3. The only difference of claim 1 of auxiliary request 2 with respect to claim 1 of the main request lies in the range of the redox. This minor change does not alter the conclusion with respect to the main request since it does not have an impact on the teaching of the application.

Therefore this request is not admitted either.

Auxiliary request 3

4. Claim 1 of this request being a combination of claim 1 of auxiliary requests 1 and 2, the conclusions for these requests apply.

Therefore this request is not admitted either.

5. In summary, none of the requests resolves the issues under Article 83 EPC, so they are not admitted.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Vodz E. Bendl

Decision electronically authenticated