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**Datasheet for the decision  
of 10 July 2025**

**Case Number:** T 0028/23 - 3.2.08

**Application Number:** 17200298.2

**Publication Number:** 3318218

**IPC:** A61C13/00

**Language of the proceedings:** EN

**Title of invention:**

DENTAL ZIRCONIA BLANK HAVING HIGH RELATIVE DENSITY

**Patent Proprietor:**

Shofu Inc.

**Opponent:**

Ivoclar Vivadent AG

**Relevant legal provisions:**

EPC Art. 111(1), 123(3)  
RPBA 2020 Art. 11

**Keyword:**

Amendments - allowable (no)  
Remittal - (yes)



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Case Number: T 0028/23 - 3.2.08

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.08**  
**of 10 July 2025**

**Appellant:**

(Opponent)

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**Decision under appeal:**

**Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
25 October 2022 concerning maintenance of the  
European Patent No. 3318218 in amended form.**

**Composition of the Board:**

**Chairwoman**            P. Acton  
**Members:**            C. Vetter  
                              K. Kerber-Zubrzycka

## Summary of Facts and Submissions

- I. The appeal was filed by the opponent (appellant) against the interlocutory decision of the opposition division finding that, on the basis of auxiliary request 2 then on file, the patent in suit met the requirements of the EPC.
- II. The opposition division had decided, *inter alia*, that claim 1 of this request complied with Article 123(3) EPC, i.e. was not amended in such a way as to extend the protection the patent as granted conferred.
- III. Oral proceedings were held before the Board.
- IV. The appellant (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

The respondent (proprietor) requested that the appeal be dismissed and the patent be maintained in the text considered allowable by the opposition division (main request), alternatively, that the patent be maintained according to one of the auxiliary requests 1 to 6 filed with the reply to the appeal on 25 July 2023.

- V. Claim 1 of the main request reads as follows (feature designation added by the Board; the amendment with respect to the patent as granted is highlighted):

**F1)** A pre-sintered body of a dental cutting zirconia blank, wherein

**F1.1)** the dental cutting zirconia blank has at least one layer consisting of zirconia powder

**F1.2)** containing 4 to 15 mol% of yttria and erbium oxide as a stabilizer,

**F1.3)** the dental cutting zirconia blank is used in the oral cavity by perfect sintering to a usable state in the oral cavity after cutting and machining which are performed after pre-sintering, and

**F1.4)** a relationship among Pre-sintering density which indicates density of the dental cutting zirconia blank after pre-sintering, Perfect-sintering density which indicates density of the dental cutting zirconia blank in use in the oral cavity and Relative density satisfies the following relation:

$$54 \leq \text{Relative density}(\%) = \{ (\text{Pre-sintering density}) / (\text{Perfect-sintering density}) \} \times 100 \leq 70.$$

Claim 1 of auxiliary requests 1 and 2 is identical to claim 1 of the main request.

Claim 1 of auxiliary requests 3 and 4 differs from that of the main request in that the relative density in feature **F1.4** has been narrowed to 55 to 65% (auxiliary request 3) and 56 to 60% (auxiliary request 4), respectively.

Claim 1 of auxiliary request 5 differs from that of auxiliary request 4 in amended feature **F1.2-AR5** and additional feature **F1.5-AR5**, which read as follows (emphasis added):

**F1.2-AR5)** containing 4 to 15 mol% of both yttria and erbium oxide as a stabilizer,

**F1.5-AR5)** wherein the dental cutting zirconia blank consists of a multilayer structure having different color tones.

Claim 1 of auxiliary request 6 is a method claim which reads as follows:

**M1)** A method of processing a dental cutting zirconia blank, comprising:

**M1.1)** pre-sintering the dental cutting zirconia blank to provide a pre-sintered body,

**M1.2)** cutting and machining the pre-sintered body and

**M1.3)** perfect sintering the cut and machined pre-sintered body to provide a perfect-sintered body,

**M1.5)** wherein the perfect-sintered body consists of a multilayer structure having different color tones,

**M1.2)** the dental cutting zirconia blank has at least one layer consisting of zirconia powder containing 4 to 15 mol% of both yttria and erbium oxide as a stabilizer, and

**M1.4)** a relationship among Pre-sintering density which indicates density of the dental cutting zirconia blank after pre-sintering, Perfect-sintering density which indicates density of the dental cutting zirconia blank in use in the oral cavity and Relative density satisfies the following relation:

$$56 \leq \text{Relative density(\%)} = \left\{ \frac{\text{Pre-sintering density}}{\text{Perfect-sintering density}} \right\} \times 100 \leq 60$$

VI. The arguments of the parties relevant to the decision are set out below in the Reasons for the Decision.

## Reasons for the Decision

1. Main request - scope of protection
  - 1.1 Claim 1 as granted relates to a "dental cutting zirconia blank".
  - 1.2 Amended claim 1 of the main request relates to a "pre-sintered body of a dental cutting zirconia blank".
  - 1.3 The proprietor argued that the term "dental cutting blank" implied an item that is being cut or milled. Therefore, according to the proprietor, claim 1 as granted was directed to a pre-sintered body from the outset.
  - 1.4 In the field of dental prosthetics, the term "dental cutting blank" can indeed be used to refer to a dental prosthesis in its raw state, i.e. before (final) shaping and sintering. However, this term is not used exclusively for pre-sintered articles. In particular, the term "dental cutting blank" is not a standard term with such a meaning. Rather, it leaves open whether or not a shaping or sintering process has already taken place, thereby encompassing both a pre-sintered body and an unsintered green body.

The description of the patent in suit, which is to be consulted to interpret claim 1 as granted, does not lead to a different conclusion. While paragraphs [0040] to [0042] and [0049] use the term "dental cutting blank" for designating a pre-sintered body, paragraph [0068] states the following:

A dental prosthesis device may be prepared from the dental cutting zirconia blank of the present

invention by cutting and machining pre-sintered body of the dental cutting zirconia blank using CAD/CAM system and by perfect sintering the cut product.

Hence, in paragraph [0068] the term "dental cutting blank" is used for designating the unsintered green body, as it is the pre-sintered body of the dental cutting zirconia blank that undergoes cutting and machining.

Therefore, the term "dental cutting blank" does not imply specifically a pre-sintered body.

- 1.5 This finding is in line with the proprietor's further argument that claim 1 as granted would be understood by the skilled person to cover a dental cutting blank irrespective of its sintering state. This argument effectively precludes the term "dental cutting blank" from being limited to a pre-sintered body.
- 1.6 It follows that two possible claim interpretations are to be considered: firstly, where the term "dental cutting blank" designates a pre-sintered body, and secondly, where it designates an unsintered green body.
- 1.7 Claim 1 as granted defines the claimed subject-matter in more detail. Among other things, feature **1.1** states that the dental cutting zirconia blank has at least one layer consisting of zirconia powder. Furthermore, feature **1.4** defines a relationship between the density of the dental cutting zirconia blank after pre-sintering, and the density of the dental cutting zirconia blank in use in the oral cavity.

1.8 The proprietor argued that the skilled person would understand the term "powder" in feature **1.1** to encompass the different sintering degrees assumed until the blank is perfectly sintered. Specifically, the skilled person would reasonably interpret the term "powder" in light of the technical context of the claim as (also) referring to a pre-sintered state.

1.9 However, the term "powder" is an established term for matter in a finely divided state. More specifically, a powder is a loose, dry substance that consists of many fine particles that can flow freely when shaken or tilted. The description of the patent in suit also does not use the term "powder" in a manner that would deviate from this general understanding.

A pre-sintered item, in contrast, is no longer composed of many fine particles as pre-sintering leads to inter-particle bonding. Paragraphs [0004] and [0041] of the patent in suit, for example, describe that pre-sintering results in an item that can be machined and that has a relative density of usually around 50% of the perfect-sintering density.

1.10 As mentioned before, feature **1.1** requires, as a characteristic of the claimed item, that it has at least one layer consisting of zirconia powder. Therefore, for technical considerations, the skilled person would exclude the first interpretation (see point 1.6 above) and would interpret granted claim 1 in accordance with the second possibility as relating to an item in an unsintered state.

1.11 The proprietor argued that feature **1.4** made no sense for an unsintered green body, so that the skilled

person would not interpret claim 1 in accordance with the second possibility.

- 1.12 It is correct that feature **1.4** specifies a characteristic only of a pre-sintered item. Therefore, it does in fact not characterise the claimed subject-matter, if the latter is interpreted to relate to an item in an unsintered state. This is, however, a possible lack of clarity or conciseness of the claim within the meaning of Article 84 EPC.

While this possible legal deficiency in the claim may lead the skilled person to seek an interpretation of the claim that resolves the deficiency, it would not lead them to interpret an established term contrary to its generally accepted meaning. This is particularly pertinent in the present case, where not even the description of the patent in suit interprets the term "powder" in a manner that deviates from the general understanding.

- 1.13 The proprietor also referred to paragraphs [0009] to [0020] of the description of the patent in suit, which state that it is difficult to provide a dental cutting zirconia blank that combines all desired properties including for instance good sintering and milling properties of the dental cutting blank as well as high strength and good reproducibility of a natural tooth's colour tone of the resulting dental prosthesis, particularly in case the blank has a multilayer structure. The proprietor concluded that, in view of this description, granted claim 1 clearly encompassed a pre-sintered body of a dental cutting blank.

- 1.14 It is true that the quoted passage of the description reads on a pre-sintered item rather than on an

unsintered green body. In this respect, the claim is possibly not supported by the description (Article 84 EPC) if it is interpreted as referring to an item in an unsintered state.

However, also this possible legal deficiency would not cause the skilled person to interpret the established term "powder" contrary to its generally accepted meaning.

1.15 It follows that granted claim 1 only covered an unsintered item and did *not* cover a pre-sintered body. Therefore, the amendment to claim 1, directing the claim to a "pre-sintered body of" a dental cutting zirconia blank, shifted the scope of protection to an *aliud*.

1.16 Consequently, the main request does not meet the requirement of Article 123(3) EPC.

2. Auxiliary requests 1 to 5 - scope of protection

2.1 As in the main request, claim 1 of each of auxiliary requests 1 to 5 relates to a "pre-sintered body of a dental cutting zirconia blank".

2.2 Therefore, the above observations with respect to the main request equally apply to each of auxiliary requests 1 to 5.

2.3 For this reason, none of auxiliary requests 1 to 5 meets the requirement of Article 123(3) EPC.

3. Remittal

3.1 Pursuant to Article 111(1) EPC and Article 11 RPBA, the Board may remit a case to the department whose decision was appealed for further prosecution.

3.2 In the present case, auxiliary request 6 is a request that the opposition division has not yet dealt with. Moreover, claim 1 of auxiliary request 6 is a method claim, whereas claim 1 of the main request and the auxiliary requests 1 to 5 is directed to a product.

3.3 Since the primary object of the appeal proceedings is to review the decision under appeal (Article 12(2) RPBA), and since there is no decision of the opposition division on auxiliary request 6 or a method claim that could be reviewed, there are special reasons for remittal within the meaning of Article 11 RPBA.

3.4 The Board's intention to remit the case to the opposition division was communicated to the parties at the oral proceedings. None of the parties requested not to remit the case to the opposition division.

3.5 The case is therefore remitted to the opposition division for further prosecution.

**Order**

**For these reasons it is decided that:**

The decision under appeal is set aside. The case is remitted to the opposition division for further prosecution.

The Registrar:

The Chairwoman:



C. Moser

P. Acton

Decision electronically authenticated