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PAT.&TM. OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

This opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

*Ex parte* HIRONORI ASAI  
and YASUYUKI SUGIURA

Appeal No. 94-3683  
Application No. 07/855,468<sup>1</sup>

ON BRIEF

Before GARRIS, PAK, and OWENS, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the refusal of the examiner to allow claims 6 through 13 as amended subsequent to the final rejection. These are all of the claims remaining in the application.

<sup>1</sup> Application for patent filed March 23, 1992, which is, according to appellants, a continuation of Application No. 07/501,095, filed March 29, 1990.

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The subject matter on appeal relates to a metallized aluminum nitride substrate which comprises a sintered aluminum nitride substrate comprising a primary phase consisting essentially of aluminum nitride and an intergranular phase consisting essentially of a sintering assistance agent, a concentration of the intergranular phase component on a surface of the sintered aluminum nitride substrate being 3 weight % or less, and a metallized layer disposed directly on the surface of the sintered aluminum nitride substrate. This appealed subject matter is adequately illustrated by independent claim 6 which reads as follows:

6. A metallized aluminum nitride substrate, comprising:

a sintered aluminum nitride substrate comprising a primary phase consisting essentially of aluminum nitride and an intergranular phase consisting essentially of a sintering assistance agent, a concentration of said intergranular phase component on a surface of said sintered aluminum nitride substrate being 3 weight % or less, and

a metallized layer disposed directly on said surface of said sintered aluminum nitride substrate.

The reference relied upon by the examiner in the rejection before us is:

Sugiura et al. (Sugiura)

4,863,658

Sep. 5, 1989

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Claims 6 through 13 "are rejected under 35 U.S.C. § 102(e) as being anticipated by Sugiura" (answer, pages 2-3).

For the reasons set forth below, we cannot sustain this rejection.

As correctly argued by the appellants, Sugiura does not disclose the here claimed feature of "a concentration of said intergranular phase component on a surface of said sintered aluminum nitride substrate being 3 weight % or less". Nevertheless, the examiner believes that her § 102 rejection is proper because the appellants' claimed "concentrations of the inter-granular phase ... are considered inherent properties in the disclosed invention of Sugiura" (answer, page 3). In our opinion, however, no proper basis exists for the examiner's inherency position.

Before an applicant can be put to the burdensome task of proving that the prior art does not inherently possess a claimed characteristic such as the here claimed surface concentration of intergranular phase component, the examiner must provide some evidence or scientific reasoning to establish the reasonableness

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of her belief that the claim limitation in question is an inherent characteristic of the prior art. See *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (Bd. Pat. App. & Int. 1986). In the case at bar, the examiner has advanced no such evidence or reasoning. On the contrary, the only evidence of record we have found concerning this matter reflects that the surface concentration of intergranular phase component on the sintered aluminum nitride substrate of Sugiura would not be within the here claimed range.

In this latter regard, the appellants teach that their claimed surface concentration is obtained by grinding 10  $\mu\text{m}$  or more from the surface of the sintered aluminum nitride substrate so as to remove therefrom high density intergranular phase component; see the first and second paragraphs on page 7 and the paragraph bridging pages 7 and 8 of the subject specification. According to the appellants' aforementioned teaching, if the grinding amount is inadequate, a surface layer where the density of the intergranular phase component is high cannot be completely removed (i.e., the high density of intergranular phase component is not removed in an amount sufficient to yield the here claimed surface concentration of 3 weight % or less).

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Although Sugiura is silent regarding the surface concentration of intergranular phase component on his sintered aluminum nitride substrate, patentee nevertheless teaches honing or grinding his substrate in order to reduce the surface roughness thereof to certain levels. In our study of the applied reference, we have found only a single incidence in which a quantitative amount of surface roughness reduction has been disclosed. This disclosure appears in Example 4 of the patent wherein the substrate was honed to reduce the surface roughness from 13  $\mu\text{m}$  to 8  $\mu\text{m}$ . Plainly, this 5  $\mu\text{m}$  reduction is significantly below the amount which the appellants teach in their specification to be required in order to result in an intergranular phase component surface concentration of 3 weight % or less.

In summary, viewed in its more favorable light, the examiner's inherency position cannot be accepted because it is based upon speculation rather than evidence or reasoning. Even worse, the above discussed evidence of record reflects that this inherency position is, not simply unsupported but, actually erroneous.



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Finnegan, Henderson, Farabow,  
Garrett and Dunner  
1300 I Street, NW  
Washington, DC 2005-3315