

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.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 ANAND GUPTA
and
TIRUNELVELI S. RAVI

Appeal No. 2001-0773
Application No. 09/200,421

ON BRIEF

Before KIMLIN, DELMENDO and WALTZ, Administrative Patent Judges.
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 15, 17, 20, 27, 30 and 31, all the claims remaining in the present application. Claim 15 is illustrative:

15. A plasma fluorine resistant polycrystalline alumina ceramic body having less than 0.1 surface area % of unsintered particles and having a mean sintered particle size ranging from about 3 μm to about 10 μm produced by the following method:

(i) forming a green body comprising alumina and a binder;
and

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(ii) sintering said green body at a temperature ranging from about 1400°C to about 1700°C for a time period ranging from about 8 hours to about 12 hours.

In the rejection of the appealed claims, the examiner relies upon the following references:

Heytmeijer et al. (Heytmeijer)	4,396,595	Aug. 02, 1983
Rhodes et al. (Rhodes)	4,762,655	Aug. 09, 1988
Takahashi et al. (Takahashi)	5,382,556	Jan. 17, 1995
Bennison et al. (Bennison)	5,411,583	May 02, 1995
Rzywucki (Polish Patent Specification)	PL 145,579	Sep. 30, 1989
Morita et al. (JP '946) (Japanese Patent Application)	5-217946	Aug. 27, 1993

Appellants' claimed invention is directed to a polycrystalline alumina ceramic body which surface area comprises less than 0.1% of unsintered particles. The ceramic body is formed by sintering a green body comprising alumina and a binder, such as magnesium oxide, at specific conditions of temperature and time of 1400°-1700°C and 8-12 hours, respectively. The ceramic body is said to be resistant to fluorine plasma. According to appellants' specification, "[a] green body which is to be sintered to produce a polycrystalline alumina ceramic material according to the invention can be formed from an alumina powder having any desired composition" (page 5, third paragraph). As for appellants' advancement in the art, the specification relates the following:

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We have discovered that an alumina ceramic material which is highly resistant to fluorine plasmas can be produced by lengthening the time of firing an alumina green body from the conventional time of about 4 hours to about 8 to 12 hours, without the need for altering the composition of the green body or any other sintering process parameters, such as the sintering temperature, which may affect the sintering mechanism [paragraph bridging pages 4 and 5].

Appealed claims 15, 17, 20, 30 and 31 stand rejected under 35 U.S.C. § 102 or, in the alternative, under 35 U.S.C. § 103 as being unpatentable over Rhodes, Heytmeijer, Takahashi, Rzywucki or JP '946. Also, claims 27, 30 and 31 stand rejected under 35 U.S.C. § 102 or, in the alternative, under 35 U.S.C. § 103 as being unpatentable over Rzywucki or Bennison.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we find that the examiner has not established a prima facie case of anticipation/obviousness for the claimed subject matter. Accordingly, we will not sustain the examiner's rejections.

Each of the references applied by the examiner discloses an alumina ceramic body formed by sintering a green body comprising alumina and a binder. However, as urged by appellants and acknowledged by the examiner, none of the references teaches that less than 0.1% of the surface area of the ceramic body comprises unsintered particles, as presently claimed. Indeed, the

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references are silent regarding such a characteristic of the ceramic bodies. In essence, the examiner's rejections are based upon a rationale that the ceramic bodies of the applied references inherently exhibit the claimed surface area.

It is well settled that when a claimed product or process reasonably appears to be substantially the same as a product or process disclosed by the prior art, the burden is on the applicant to prove that the prior art product or process does not necessarily or inherently possess characteristics attributed to the claimed product or process. See In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Manifestly, before the burden is shifted to the applicant in such situations, the initial burden is upon the examiner to demonstrate that the claimed product or process reasonably appears to be substantially the same as the prior art product or process. This is often accomplished by, for instance, demonstrating that the processes employed by the applicant and the prior art are so similar that one would reasonably expect that the product prepared by the process would be substantially the same.

In the present case we are not satisfied that the examiner has met the initial burden. It is clear from appellants'

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specification that their departure from the prior art is sintering the green body within the claimed temperature range for a period of from about 8 hours to about 12 hours, rather than 4 hours. Specification Figures 3 and 4 illustrate the differences between the same ceramic material after firing times of 4 and 8 hours. On the other hand, each of the references applied by the examiner utilizes a different sintering protocol than the one employed by appellants. For instance, Rhodes sinters at a temperature which barely touches the upper limit of the claimed range for a maximum of 6 hours, and we cannot agree with the examiner that the claimed "about 8 hours" encompasses Rhodes' upper limit of 6 hours. While it has been held that "about 10%" embraces 8%, 6 hours is 25% less than 8 hours.

As for Heytmeijer, although the reference discloses a final sintering step of 2 to 24 hours which encompasses the claimed time range, Heytmeijer also includes a pre-sintering step of 1 to 10 hours at about 1000°C and a final sintering step at a temperature of 1700°-1900°C. As pointed out by appellants, the process disclosed in the present specification does not include a pre-sintering step.

Takahashi sinters an alumina comprising zirconium oxide and exemplifies a sintering temperature which overlaps the claimed

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range for a period of 6 hours. Also, Rzywucki sinters in an atmosphere of hydrogen, desiccated ammonia or vacuum at a temperature higher than 1700°C over a period of 1 to 5 hours (see page 5 of translation). Similarly, JP '946 is calcined at 1000°C and then sintered for 1-8 hours at 1700°-1800°C in a vapor atmosphere (page 10 of translation, penultimate paragraph). Finally, Bennison takes more than an hour to increase the temperature from 1000°C to 1650°C, which temperature is held for an hour.

As a result, it can be seen that none of the applied references employs a sintering protocol that is substantially the same as the one utilized by appellants. Accordingly, there is no factual basis for concluding that the ceramic bodies prepared by the prior art processes would be reasonably expected to possess the same surface characteristics claimed by appellants. At best, it might be said that one of ordinary skill in the art could operate within the boundaries of the prior art processes and obtain the claimed amount of surface area occupied by unsintered particles. But absent the requisite motivation to do so, and the examiner has not furnished such motivation, such a result would occur by happenstance only. It is by now axiomatic that inherency must be established by inevitability, not probabilities or possibilities.

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In conclusion, based on the foregoing, the examiner's
decision rejecting the appealed claims is reversed.

REVERSED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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THOMAS A. WALTZ)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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ROMULO H. DELMENDO)	
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