

The opinion in support of the decision being entered today is  
*not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* TOSHIYUKI ITO  
And HARUNOBU SANO

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Appeal 2007-1263  
Application 10/480,198  
Technology Center 1700

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Decided: August 30, 2007

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Before BRADLEY R. GARRIS, CHUNG K. PAK, and  
THOMAS A. WALTZ, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Primary Examiner's final rejection of claims 12-26 and 30-32. The only other claims pending in this application are claims 27-29, which stand withdrawn from further consideration by the Examiner as drawn to a non-elected invention (Br. 3). We have jurisdiction pursuant to 35 U.S.C. § 6(b).

According to Appellants, the invention is directed to a non-reducing ceramic characterized by a perovskite crystal phase containing 55 mole % or more of strontium titanate and an accessory phase containing all other crystal phases, with the ratio of the accessory crystal phase powder CuK $\alpha$  X-ray diffraction pattern maximum peak intensity at  $2\theta = 25^\circ$  to  $35^\circ$  to that of the perovskite crystal phase being less than 5% (Br. 4). Independent claim 12 is illustrative of the invention and a copy of this claim is reproduced below:

12. A nonreducing dielectric ceramic comprising a perovskite principal crystal phase containing 55 mole percent or more of SrTiO<sub>3</sub> and an accessory crystal phase containing all the crystal phases other than the perovskite crystal phase, wherein the ratio of the accessory crystal powder CuK $\alpha$  X-ray diffraction pattern maximum peak intensity at  $2\theta = 25^\circ$  to  $35^\circ$  to that of the perovskite crystal phase is less than 5%.

The Examiner has relied on the following prior art references as evidence of unpatentability:

Kojima	US 6,118,648	Sep. 12, 2000
Fujii	US 6,329,311 B1	Dec. 11, 2001
Fukui	US 6,656,863 B2	Dec. 02, 2003

#### ISSUES ON APPEAL

Claims 12-26 and 30-32 stand rejected under 35 U.S.C. § 102 as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as unpatentable over Fukui or Fujii or Kojima (Answer 3).<sup>1</sup>

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<sup>1</sup> For purposes of judicial economy, we have grouped the three separate rejections on page 3 of the Answer into one alternative rejection since the claims and issues involved in each rejection are the same (*see also* Br. 5, section VI). We note that the only difference is that the rejections over

Appellants contend that underlying all of the rejections is the Examiner's presumption that the ratio recited in the claims is a characteristic of the starting materials rather than the claimed dielectric (Br. 9).

Appellants contend that none of the references teach the claimed ratio or teach how it is possible to achieve such a ratio (Br. 7-8).

Appellants contend that all of the references disclose a one-step calcination process while the claimed product is formed after a two-step calcination (Br. 6, 8-9). Appellants further contend that the Examiner has not shown any evidence of a motivation to add a second calcination step to the prior art process (Br. 8-9).

Appellants contend that the Examiner's speculation is incorrect since unexpected results have been shown for products produced by a two-step calcination process, citing the comparison of samples 11 vs. 16 and samples 37 vs. 48 as shown in the Specification (Br. 6-7, 10-13; Reply Br. 1-3).

The Examiner contends that, although none of the references disclose the claimed ratio, the claimed composition reasonably appears to be substantially the same as the prior art composition, and the burden falls to Appellants to prove by tangible evidence that the prior art does not necessarily possess the claimed characteristic (Answer 4).

The Examiner contends that, although the references do not disclose a two-step calcination process, the patentability of a product does not depend on its method of production and Appellants have not shown that the claimed ratio is not possessed by the prior art (Answer 4).

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Fukui and Fujii are based on § 102(a or e) while the rejection over Kojima is based on § 102(b).

The Examiner contends that Appellants' comparative examples are not considered representative of the dielectric ceramic of the prior art references since these samples use different processing temperatures and times than that taught by Fukui, Fujii, and Kojima (Answer 5-6).

Accordingly, we determine the issues presented from the record in this appeal are as follows: (1) has the Examiner established that the dielectric ceramics of the prior art references reasonably appear to be the same or substantially the same as the claimed product?; and (2) if the Examiner has established a prima facie case of anticipation/obviousness, have Appellants' comparative samples adequately rebutted this prima facie case?

We determine that the Examiner has established a prima facie case of anticipation and obviousness in view of the reference evidence, which prima facie case has not been adequately rebutted by Appellants' arguments and evidence. Therefore, we AFFIRM all grounds of rejection presented in this appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.

#### OPINION

We determine the following factual findings from the record in this appeal:

(1) Fukui, Fujii, and Kojima disclose dielectric ceramic compositions including a perovskite phase of  $(\text{Sr}_{1-x}\text{Ca}_x)_m(\text{Ti}_{1-y}\text{Zr}_y)\text{O}_2$ , which further contains rare earth elements,  $\text{MnO}$ , and other accessory or auxiliary phases (Answer 3; Fukui, Abstract; col. 3, ll. 6-27; Fujii, Abstract; col. 2, l. 25-col. 3, l. 34; and Kojima, Abstract; col. 2, l. 30-64; and col. 3, ll. 38-60); and

(2) Fukui, Fujii, and Kojima disclose various values for the amounts of each ingredient in the resulting ceramic, while teaching the beneficial properties or lack thereof as a function of the amount of each element (Fukui, col. 6, l. 20-col. 8, l. 35; Fujii, col. 6, l. 14-col. 8, l. 10; and Kojima, col. 3, l. 38-col. 5, l. 3).

As held by a predecessor of our reviewing court:

[I]t is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.

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Whether the rejection is based on “inherency” under 35 USC 102, on “prima facie obviousness” under 35 USC 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO’s inability to manufacture products or to obtain and compare prior art products. [Citation omitted].

*In re Best*, 195 USPQ 430, 433-34 (CCPA 1977) (footnote omitted); *see also In re Skoner*, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975); and *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657-658 (Fed. Cir. 1990).

When presenting a comparison to establish unexpected results, it is incumbent upon Appellants to show a comparison of the claimed subject matter with the closest prior art. *See In re Burckel*, 592 F.2d 1175, 1179,

201 USPQ 67, 71 (CCPA 1979). Appellants comparative data must also be commensurate in scope with the subject matter sought to be claimed. *See In re Payne*, 606 F.2d 303, 315-16, 203 USPQ 245, 256 (CCPA 1979). Generally, the discovery of optimum values of a result-effective variable is within the ordinary skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); and *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that the Examiner has established a *prima facie* case of anticipation and obviousness in view of the reference evidence. Based on the totality of the record, including evidence for and against obviousness, we determine that Appellants' showing of unexpected results and arguments are not sufficient to overcome the Examiner's *prima facie* case of anticipation and obviousness for reasons discussed in the Answer and below. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

As shown by factual finding (1) listed above, we determine that Fukui, Fujii, and Kojima disclose a non-reducing dielectric ceramic comprising a perovskite principal phase containing amounts of each element in ranges the same or overlapping those recited in the claims on appeal, including amounts of accessory or auxiliary phases (e.g., *see* claims 13 and 14 on appeal). Accordingly, we determine that the references disclose the same starting materials in the same amounts as Appellants employ, while forming the ceramic by a substantially similar process. Thus, we determine that the Examiner has established a reasonable basis for believing that the products of the applied references are the same or

substantially the same as the claimed products. Additionally, as shown by factual finding (2) listed above, we determine that Fukui, Fujii, and Kojima teach that the amount of each element in the principal and accessory phases is a result-effective variable, and thus optimization of these variables would have been well within the ordinary skill in the art. Accordingly, the specific amounts and properties of the resulting dielectric ceramic would have been obvious in view of the reference teachings.

Appellants assert that unexpected results have been shown when comparing the single step calcination process used in the making of the prior art ceramic versus the two-step calcination employed in the process of making the claimed ceramic product (Br. 8-9, 10-13; Reply Br. 1-3). However, as discussed above, Appellants have not shown that this comparison is with the closest prior art nor commensurate in scope with the subject matter of the claims. Appellants' comparison involves the same starting materials in the same amounts, with one batch of materials calcined only once at 1100°C for two hours while the other batch, in accordance with Appellants' teachings, was subjected to a two-step calcination (750°C for two hours and then 1100°C for two hours). *See* the Specification:22-30 and 37-42, and Br. 10.<sup>2</sup> We determine that Appellants have not shown that these comparisons were with the closest prior art. For example, we determine that Fukui teaches calcination under conditions of a rate of temperature rise of 200°C/hour to a holding temperature of 1200 to 1380°C for a time of two hours (col. 13, ll. 38-42), while Fujii teaches

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<sup>2</sup> The comparative samples 37 and 48 differ slightly from samples 11 and 16 in that sample 37 was subjected to a two-step calcination (800°C for two hours followed by 1000°C for two hours) while sample 48 was once calcined at 1000°C for two hours (Specification 38).

separately calcining the starting raw materials for the principal component (1000-1300°C for 1-4 hours) from the calcination of the starting raw materials for the auxiliary components (800 to 1200°C for 1-4 hours) (Fujii, col. 5, ll. 1-2; col. 6, ll. 2-13; col. 8, ll. 45-59; col. 9, ll. 7-13; and col. 10, ll. 14-20). Thus, we determine that the comparisons presented by Appellants are not with the closest prior art. Furthermore, we determine that the comparisons do not treat the materials in equal manner, i.e., Appellants' disclosed process employs four hours of heating for the calcination but is compared to only two hours of calcination when four hours of calcination is within the scope of the prior art. Thus, we determine that the comparative data is not truly comparative.

Finally, we determine that the comparative results have not been shown to be commensurate in scope with the claimed subject matter. Appellants have only presented two comparisons at specific calcination temperatures and times which produce two resulting ceramics with unspecified amounts of a perovskite phase, an accessory phase, and a ratio of two (Specification, Table 2 on page 25 and Table 5 on page 39). We determine that these results are not commensurate with the scope of the claims, which include ceramics with various amounts of perovskite and accessory crystal phases as well as various ratios up to 5%. Accordingly, Appellants have not met their burden of establishing that these results are commensurate in scope with the claimed subject matter.

For the foregoing reasons and those stated in the Answer, we affirm all grounds of rejection presented in this appeal. The decision of the Examiner is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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