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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			LUK, VANESSA TIBAY	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* NAOYUKI SANADA,  
TOMOHIRO SUETSUNA, and  
HIROAKI KINOCHI

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Appeal 2023-002165  
Application 16/807,400  
Technology Center 1700

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Before KAREN M. HASTINGS, JAMES C. HOUSEL, and  
JULIA HEANEY, *Administrative Patent Judges*.

HASTINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Examiner’s decision to reject claims 1–13 and 18–20<sup>2</sup> (*see* Final Act. 1). We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We affirm.

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<sup>1</sup> “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Kabushiki Kaisha Toshiba as the real party in interest (Appeal Br. 1).

<sup>2</sup> Claims 14–17, 21, and 22 have been withdrawn from consideration (Final Act. 1).

### CLAIMED SUBJECT MATTER

Claim 1 illustrates the subject matter on appeal:

1. A magnetic material, comprising:

a plurality of flaky magnetic metal particles, each flaky magnetic metal particle having a flat surface, and a magnetic metal phase containing at least one first element selected from the group consisting of Fe, Co, and Ni, the flaky magnetic metal particles having an average thickness of from 10 nm to 100  $\mu\text{m}$  and an average value of the ratio of the average length in the flat surface to the thickness of from 5 to 10,000;

an intercalated phase existing between the flaky magnetic metal particles and containing at least one second element selected from the group consisting of oxygen (O), carbon (C), nitrogen (N), and fluorine (F); and

a plane,

wherein the magnetic material includes the intercalated phase at a volume ratio of from 4% to 17% and includes voids at a volume ratio of 30% or less, and an average angle of orientation between the flat surface and the plane of the magnetic material is 10° or less.

(Appeal Br. 15 (Claims App.)).

### REFERENCES

The Examiner relied upon the following prior art:

Name	Reference	Date
Wang	US 2007/0149758 A1	June 28, 2007
Suetsuna	US 2018/0258513 A1	Sept. 13, 2018

### REJECTIONS ON APPEAL

Claim(s) Rejected	35 U.S.C. §	Reference(s)/Basis
1-4, 9, 11-13, 18-20	103	Suetsuna
5-8, 10	103	Suetsuna, Wang

## OPINION

We have reviewed each of Appellant's arguments and evidence. However, we are in agreement with the Examiner that the claimed subject matter of representative claim 1 would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. We determine, after consideration of all of the evidence in this appeal, including Appellant's Figures 11–13 and paragraphs 111 and 152–166 of the Specification (including Tables 1 and 2), that the evidence tending to establish the obviousness of the claimed subject matter outweighs any evidence of record that Appellant relies upon to indicate the non-obviousness thereof.

Accordingly, we sustain the Examiner's rejection of the claims for essentially those reasons expressed in the Answer, including the Examiner's Response to Argument section. We add the following primarily for emphasis.

The Examiner finds Suetsuna teaches a pressed powder magnetic material containing flaky magnetic particles and an intercalated phase (Final Act. 4). The Examiner finds Suetsuna's material includes a plane and has an angle of 0–30 degrees (*id.*). Further, the flaky metal particles have a flat surface and meet the thickness, aspect ratio, and composition requirements of claim 1 (*id.*). The Examiner also finds the intercalated phase meets the compositional and volumetric requirements of claim 1 and Suetsuna teaches that the material may have no pores (*id.*).

Appellant argues that claim 1 requires all three conditions of (1) the intercalated phase being at a volume ratio of from 4% to 17%, (2) voids at a volume ratio of 30% or less, and (3) an average angle of orientation between

the flat surface and the plane of the magnetic material being 10° or less to be satisfied at the same time (Appeal Br. 5). According to Appellant, the Examiner's conclusion of obviousness is premised on trying all possible combinations of these three parameters to arrive at the claimed combination (*id.*).

Appellant's argument is unpersuasive because the Examiner finds that Suetsuna teaches or suggests ranges that overlap the three parameters claim 1 requires (Final Act. 5). As the Examiner correctly finds, Suetsuna teaches an average angle of orientation between the flat surface of the flaky magnetic metal particles and the plane between 0° and 30°, a volumetric content of 0.01–80 wt% for Suetsuna's interposed phase, and that the material may lack pores (Suetsuna ¶¶ 111, 98, 104). Indeed, Suetsuna teaches narrower ranges of these parameters overlapping the claimed parameters, including an average angle of orientation of 0–10°, an interposed phase volumetric content of 0.1–40 wt%, and a void volume of 0% (*id.*). A prima facie case of obviousness arises when the ranges of a claimed composition overlap the ranges disclosed in the prior art (*In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003)).

Appellant further contends in their Reply Brief that Suetsuna does not teach claim 1's void content because “*Suetsuna* merely discloses that ‘[i]n a pressed powder material, pores may also exist partially,’ and refers to ‘a case in which there are no pores’” and because “*Suetsuna* at most discloses that pores may or may not exist in a pressed powder material” (Reply Br. 3; citing Suetsuna ¶ 104). Suetsuna nonetheless contemplates an embodiment “in which there are no pores” (Suetsuna ¶ 104). Therefore, Suetsuna teaches

or suggests a value or range falling within claim 1's void range. *Peterson*, 315 F.3d at 1329.

Appellant also asserts that the claimed magnetic material provides unexpected results when all three of claim 1's conditions (intercalated phase volume ratio, void volume, and average angle of orientation) are satisfied (Appeal Br. 6–13; Reply Br. 3–8). Specifically, Appellant argues that Figures 11–13 and paragraphs 111 and 152–166 (including Tables 1 and 2) demonstrate unexpectedly favorable strength and magnetic properties for their inventive Examples in contrast to Comparative Examples (Appeal Br. 6–13).

When evidence of secondary considerations is submitted, we begin anew and evaluate the rebuttal evidence along with the evidence upon which the conclusion of *prima facie* obviousness was based, rather than evaluating it on its knockdown ability (*In re Rinehart*, 531 F.2d 1048, 1052 (CCPA 1976)). In weighing secondary considerations along with the other evidence, the secondary considerations must be carefully appraised as to evidentiary value.

The burden of establishing unexpected results rests upon the party asserting them (*In re Klosak*, 455 F.2d 1077, 1088 (CCPA 1972)). Appellant may meet this burden by establishing that the difference between the claimed invention and the closest prior art is an unexpected difference (*see id.* at 1080; *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991)). Further, “unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification does not suffice” (*De*

*Blauwe*, 736 F.2d at 705; *see also In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995); *In re Geisler*, 116 F.3d 1465, 1470–71 (Fed. Cir. 1997)).

Here, Appellant’s unexpected results are not supported by factual evidence. The Specification’s description of Figures 11–13 and Tables 1 and 2 does not describe the inventive Examples as demonstrating results that are unexpected. For instance, paragraphs 110–112 of the Specification do not describe the results shown in Figures 11–13 as unexpected and paragraph 166 merely states that results provided in Table 2 are “excellent” and “remarkable effects are obtained.” Therefore, Appellant’s assertions that the results are unexpected are supported only by attorney argument and conclusory statements in the Specification, which are insufficient.

In addition, Appellant does not address whether the asserted unexpected results are in comparison to the closest prior art (*De Blauwe*, 736 F.2d at 705; *Baxter Travenol Labs.*, 952 F.2d at 392). For instance, Appellant does not explain whether the Comparative Examples are representative of Suetsuna,<sup>3</sup> assuming Suetsuna is the closest prior art.

Accordingly, after weighing all the evidence for and against obviousness, we determine that a preponderance of the evidence supports the Examiner’s conclusion of the obviousness of independent claim 1. For these reasons, we affirm the Examiner’s § 103 rejection of claims 1–4, 9, 11–13, and 18–20 over Suetsuna.

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<sup>3</sup> Given that Suetsuna is Appellant’s own prior art, Appellant is in the best position to address whether any Comparative Examples are exemplary of Suetsuna.

Appellant does not separately address the § 103 rejection of claims 5–8 and 10 over Suetsuna and Wang. Therefore, we also affirm the § 103 rejection over Suetsuna and Wang.

### DECISION SUMMARY

In summary:

<b>Claim(s) Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1–4, 9, 11–13, 18–20	103	Suetsuna	1–4, 9, 11– 13, 18–20	
5–8, 10	103	Suetsuna, Wang	5–8, 10	
<b>Overall Outcome</b>			1–13, 18–20	

### TIME PERIOD FOR RESPONSE

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) (2021).

AFFIRMED