

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

SOLUS ADVANCED MATERIALS CO., LTD.,  
Petitioner,

v.

SK NEXILIS CO., LTD.,  
Patent Owner.

---

IPR2024-01462  
Patent 11,346,014 B2

---

Before JOHN G. NEW, JO-ANNE M. KOKOSKI, and  
JON B. TORNQUIST, *Administrative Patent Judges*.

KOKOSKI, *Administrative Patent Judge*.

DECISION

Denying Petitioner's Request for Rehearing of  
Decision Denying Institution of *Inter Partes* Review  
*37 C.F.R. § 42.71(d)*

## I. INTRODUCTION

Solus Advanced Materials Co., Ltd. (“Petitioner”) filed a Request for Rehearing of our Decision (Paper 14, “Decision” or “Dec.”) denying institution of *inter partes* review of claims 1–8 (“the challenged claims”) of U.S. Patent No. 11,346,014 B2 (“the ’014 patent,” Ex. 1001). Paper 15 (“Request” or “Req.”). The Request challenges our determination that the information presented in the Petition did not establish a reasonable likelihood of showing that (1) claims 1, 4, and 8 would have been obvious over the combined teachings of Hanafusa<sup>1</sup> and Dobashi;<sup>2</sup> (2) claim 2 would have been obvious over the combined teachings of Hanafusa, Dobashi, and Cheng;<sup>3</sup> (3) claim 3 would have been obvious over the combined teachings of Hanafusa, Dobashi, and Kim;<sup>4</sup> (4) claims 5 and 6 would have been obvious over the combined teachings of Hanafusa, Dobashi, and Lee;<sup>5</sup> and (5) claim 7 would have been obvious over the combined teachings of Hanafusa, Dobashi, and Kajihara.<sup>6</sup> Dec. 9–25. For the reasons that follow, Petitioner’s Request is denied.

## II. STANDARD OF REVIEW

When rehearing a decision on institution, we do not review the merits of the decision *de novo*, but instead review the decision for an abuse of discretion. 37 C.F.R. § 42.71(c). An abuse of discretion may be determined “if a decision is based on an erroneous interpretation of law, if a factual finding is not supported by substantial evidence, or if the decision represents

---

<sup>1</sup> US 2010/0136434 A1, published June 3, 2010 (“Hanafusa,” Ex. 1004).

<sup>2</sup> US 8,715,836 B2, issued May 6, 2014 (“Dobashi,” Ex. 1005).

<sup>3</sup> US 9,209,485 B2, issued Dec. 8, 2015 (“Cheng,” Ex. 1007).

<sup>4</sup> US 8,349,518 B2, issued Jan. 8, 2013 (“Kim,” Ex. 1008).

<sup>5</sup> US 11,142,838 B2, issued Oct. 12, 2021 (“Lee,” Ex. 1006).

<sup>6</sup> US 4,981,560, issued Jan. 1, 1991 (“Kajihara,” Ex. 1012).

an unreasonable judgment in weighing relevant factors.” *Arnold Partnership v. Dudas*, 362 F.3d 1338, 1340 (Fed. Cir. 2004) (citing *In re Gartside*, 203 F.3d 1305, 1315–16 (Fed. Cir. 2000)). The party requesting rehearing has the burden to show that the decision should be modified. 37 C.F.R. § 42.71(d). Additionally, the request for rehearing “must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed in a motion, an opposition, or a reply.” *Id.*

### III. ANALYSIS

Our Decision rests on our determination that Petitioner did not adequately establish that a person having ordinary skill in the art (“POSITA”) would have been motivated to modify Hanafusa in light of Dobashi with a reasonable expectation of success.<sup>7</sup> Dec. 11–18. Petitioner argues that reconsideration is appropriate because the Board misapprehended Dobashi’s teachings and overlooked Petitioner’s rationale for combining Hanafusa and Dobashi. Req. 2–3, 5–7. Petitioner also argues that the Board erred in finding that Hanafusa’s and Dobashi’s R<sub>z</sub> values were incompatible. *Id.* at 1, 4–5.

We reviewed the Request and carefully considered the arguments presented. For the following reasons, we are not persuaded that we abused our discretion in denying institution of an *inter partes* review of the challenged claims.

---

<sup>7</sup> Each ground relies on the combination of Hanafusa and Dobashi, and Petitioner’s arguments with respect to the grounds including additional references do not cure the deficiencies with respect to the combination of Hanafusa and Dobashi.

*A. Motivation to Combine Hanafusa and Dobashi*

Petitioner contends that “the Board misapprehended the Hanafusa-Dobashi combination,” and “overlook[ed] critical evidence provided in support of the combination.” Req. 1. In particular, Petitioner contends that “[w]hile the Decision correctly points out that ‘Dobashi . . . teaches that RSm is an indicator of surface waviness,’ it overlooks the fact that Dobashi also recognizes having a large RSm as leading [to] surface smoothness, which is what Hanafusa expressly seeks.” *Id.* at 6 (citing Pet. 10–11; Ex. 1003 ¶¶ 50–51; Ex. 1005, 6:25–30) (alteration in original). Petitioner further contends that the Petition demonstrates, “th[orough] reasoned analysis . . . that a POSITA would have found it obvious to select and combine the teachings of Hanafusa and Dobashi in the manner claimed, motivated in part by the desire to achieve a smooth surface in Hanafusa.” *Id.* at 7 (citing Pet. 9–12; Ex. 1003 ¶¶ 46–52).

We are not persuaded by Petitioner’s arguments. In the Decision, we directly addressed Petitioner’s argument that a POSITA would have been motivated to modify Hanafusa’s electrolytic copper foil to have the RSm values taught by Dobashi. Dec. 14–15. And we specifically addressed Dobashi’s teachings regarding RSm that Petitioner now contends we overlooked:

In particular, neither Petitioner nor Dr. Josefowicz adequately explain why a POSITA looking for ways to make Hanafusa’s surface roughness low-profile would look to methods to achieve Dobashi’s RSm values. Dobashi teaches that because RSm “can be adopted as the period of waviness, RSm can also be used as an indicator for judgment of the surface.” Ex. 1005, 2:66–3:1, 6:23–26. Dobashi explains that waviness is “an indicator for determining whether the fine pattern forming performance is good or bad,” and “[t]he surface has small waviness and is smooth when RSm is large, and the surface has large waviness

and is rough when RSm is small.” *Id.* at 3:1–3, 6:27–29. Dobashi also teaches that surface roughness Rzjis is used as a low-profile indicator. Ex. 1005, 2:66–3:1. Dobashi, therefore, teaches that RSm is an indicator of surface waviness, which Dobashi explains is different than surface roughness. *Id.* at 2:66–3:3, 6:23–29. Given these teachings in Dobashi, neither Petitioner nor Dr. Josefowicz sufficiently explains how or why a POSITA would have been motivated to implement Dobashi’s RSm values to make Hanafusa’s surface roughness low-profile. *See* Pet. 10–12; Ex. 1003 ¶¶ 46–52.

*Id.* (footnote omitted). We further explained that “Petitioner focuses on Dobashi’s RSm value in order to derive the peak density values used to calculate the binding coefficient using Mathematical Expression 1 in claim 1 of the ’014 patent,” which we interpreted “as an attempt to imbue one of ordinary skill in the art with the knowledge of the claimed invention, when no prior art reference, references of record, or other evidence conveys or suggests that knowledge.” *Id.* at 16–17 (citing Pet. 9–10).

Therefore, we did not overlook or misapprehend Petitioner’s arguments and evidence, but rather evaluated the disclosures in Hanafusa and Dobashi, and Dr. Josefowicz’s testimony, and determined that they do not provide sufficient support for Petitioner’s proffered motivation to combine Hanafusa and Dobashi. In essence, Petitioner disagrees with our decision on this issue. A request for rehearing, however, is not an opportunity to merely disagree with the Board’s assessment of the arguments or weighing of the evidence.

*B. Hanafusa’s and Dobashi’s Rz Values*

Petitioner contends that “Patent Owner sought to muddy the waters by suggesting the Rz values reported in Hanafusa and Dobashi were somehow incompatible” and “the Decision appears to have been influenced by the unfounded and irrelevant assertion, stating that the Petition failed to explain

‘why a POSITA would look to Dobashi’s RSm values to improve Hanafusa, despite the apparent incompatibility of Hanafusa’s and Dobashi’s Rz values.’” Req. 4 (citing Prelim. Resp. 43–44; Dec. 16). Petitioner argues that “it was not necessary for the Petition to delve further into the distinction between Rz and Rzjis” because “the difference had no bearing on the proposed combination.” *Id.* at 4–5. Petitioner goes on to note that “it is worth clarifying that the two measurements are not equivalent” and “Rzjis is, by definition, smaller than Rz.” *Id.* at 5; *see also id.* (“[B]ecause Rz reflects only the single largest peak and valley, while Rzjis averages multiple peaks/valleys, Rz necessarily yields a higher value.” (citing Ex. 1010, 10, 24)).

We disagree that the differences between Hanafusa’s and Dobashi’s Rz values are not relevant to the proposed combination. Hanafusa teaches that surface roughness Rz is preferably below 2.0  $\mu\text{m}$  in order to avoid crack-forming conditions, and above 1.0  $\mu\text{m}$  to avoid decreasing adhesion to a negative-electrode material. Ex. 1004 ¶ 4. Thus, as we explained in the Decision, “the low-profile rough surface that Hanafusa teaches can be made using ‘all the known methods’ and would have a surface roughness Rz of 1.0 to 2.0  $\mu\text{m}$ .” Dec. 15 (citing Ex. 1004 ¶¶ 4, 23).

Dobashi, however, teaches that the surface roughness Rzjis “is preferably 0.1  $\mu\text{m}$  to 1.0  $\mu\text{m}$ , and more preferably 0.1  $\mu\text{m}$  to 0.5  $\mu\text{m}$ .” Ex. 1005, 8:4–6. Dobashi provides Rzjis values for seven different examples that range from 0.17 to 0.71  $\mu\text{m}$ . *Id.* at 16:54–17:17 (Table 2). Moreover, Dr. Josefowicz testifies that Rz “is the ‘maximum height of profile,” and “Dobashi discloses this parameter as PV, the ‘maximum peak to valley height.’” Ex. 1003 ¶ 49 (citing Ex. 1005, 7:55). Dobashi reports PV values for its seven examples ranging from 0.079 to 0.66  $\mu\text{m}$ , which is

well below Hanafusa's preferred Rz of 1.0 to 2.0  $\mu\text{m}$ . Ex. 1005, 16:54–17:17 (Table 2). Neither Petitioner nor Dr. Josefowicz adequately explains why a POSITA looking to make Hanafusa's rough surface low profile, i.e., Rz of 1.0 to 2.0  $\mu\text{m}$ , would look to Dobashi for guidance, given Dobashi's surface roughness Rzjis values and PV values are below 1.0  $\mu\text{m}$ . That Rzjis is lower than Rz is not enough by itself to support a motivation to modify Hanafusa with the teachings of Dobashi as Petitioner proposes.

It was Petitioner's burden to establish that a POSITA would have been motivated to modify Hanafusa with Dobashi as Petitioner contends. We are not persuaded that we abused our discretion when we determined that Petitioner did not meet that burden.

#### IV. CONCLUSION

After reviewing and considering the arguments in Petitioner's Request, we conclude that Petitioner does not carry its burden of demonstrating that we overlooked or misapprehended any matters, and therefore abused our discretion, in denying institution of *inter partes* review of the challenged claims of the '014 patent. 37 C.F.R. § 42.71(d).

#### V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner's Request for Rehearing is *denied*.

IPR2024-01462  
Patent 11,346,014 B2

FOR PETITIONER:

Timothy W. Riffe  
Hyun Jin In  
Sangki Park  
FISH & RICHARDSON P.C.  
riffe@fr.com  
in@fr.com  
spark@fr.com  
IPR57533-0003IP1@fr.com

FOR PATENT OWNER:

Michael D. Specht  
Daniel E. Yonan  
Jason A. Fitzsimmons  
Jennifer Meyer Chagnon  
Charles D. Hammond  
Ian Soule  
STERNE, KESSLER, GOLDSTEIN & FOX PLLC  
mspecht-PTAB@sternekessler.com  
dyonan-PTAB@sternekessler.com  
jfitzsimmons-PTAB@sternekessler.com  
jchagnon-PTAB@sternekessler.com  
chammond-PTAB@sternekessler.com  
isoule-PTAB@sternekessler.com

James M. Glass  
Quincy Lu  
David Elihu  
D. James Park  
John Yin  
QUINN EMANUEL URQUHART & SULLIVAN LLP  
jimglass@quinnemanuel.com  
quincylu@quinnemanuel.com  
davideliu@quinnemanuel.com  
jamespak@quinnemanuel.com  
johnyin@quinnemanuel.com