

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.

Case IPR2024-01462
Patent 11,346,014

PETITIONER'S REQUEST FOR REHEARING

I. INTRODUCTION

Petitioner respectfully requests rehearing pursuant to 37 C.F.R. § 42.71(d) for claims 1-8 of U.S. Patent No. 11,346,014 (the “’014 Patent”). In its Decision on Institution (“DI” or “Decision”), the Board misapprehended the Hanafusa-Dobashi combination, in so doing overlooking critical evidence provided in support of the combination.

First, Patent Owner’s unsupported attorney arguments misled the Board to conclude that Hanafusa and Dobashi disclose “*conflicting* Rz values,” namely because Hanafusa has “a surface roughness Rz of 1.0 to 2.0 μm ” while Dobashi has a “surface roughness Rzjis [that] is preferably 0.1 to 1.0 μm .” DI, 15-16¹; *see* POPR, 43-44. This is incorrect. A closer look at the evidence of record confirms that Patent Owner’s attempts to obscure the issues are nothing more than red herrings that the Board should have disregarded. Among other things, as the Petition makes clear, **Rz is “not to be confused” with Rzjis**. Petition, 10; SOLUS-1003, ¶49; SOLUS-1010, 8. The fact that Hanafusa’s Rz values and Dobashi’s Rzjis values are different reinforces the technical validity of the combination, as supported by the declaration of Dr. Josefowicz.

Second, contrary to the Board’s conclusion that “neither Petitioner nor Dr.

¹ All emphasis added unless otherwise noted.

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," both the Petition and Dr. Josefowicz explained this rationale in great detail. DI, 15. For instance, "a POSITA would have been motivated to apply Dobashi's disclosure of 'RSm' to further achieve Hanafusa's stated purpose" of "mak[ing] a rough surface low-profile." Petition, 10-11; SOLUS-1003, ¶¶50-51. To this end, as the Petition explains, Dobashi teaches that RSm can be optimized to achieve a surface that has both "small waviness *and is smooth*." Petition, 11; SOLUS-1005, 6:25-30. In other words, motivated by Hanafusa's desire to make a smooth (*i.e.*, low-profile) surface, a POSITA would have looked to the teachings of Dobashi, which explicitly links surface smoothness to a large RSm value. *See* Petition, 10-11; SOLUS-1003, ¶¶50-51; SOLUS-1005, 6:25-30. While the Decision correctly points out that "Dobashi ... teaches that RSm is an indicator of surface waviness," it overlooks the fact that Dobashi further recognizes RSm as being an indicator of surface roughness/smoothness. *Id.*

II. LEGAL STANDARD

"A party dissatisfied with a decision may file a single request for rehearing without prior authorization from the Board" and "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."

37 C.F.R. § 42.71(d). When reconsidering a decision on institution, the Board reviews the decision for an abuse of discretion. 37 C.F.R. § 42.71(c). “An abuse of discretion occurs if the decision (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact findings; or (4) involves a record that contains no evidence on which the Board could rationally base its decision.” *Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 442 (Fed. Cir. 2015).

III. ARGUMENT

A. The Decision Misapprehended or Overlooked Petitioner’s Arguments Regarding Hanafusa and Its Rz Value

As previously noted, Patent Owner sought to muddy the waters by suggesting that the Rz values reported in Hanafusa and Dobashi were somehow incompatible, and that this alleged incompatibility weighed against combining the two references. *See* POPR, 43-44. Unfortunately, the Decision appears to have been influenced by this 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.” Decision, 16.

Although it was not necessary for the Petition to delve further into the distinction between Rz and Rzjis—since the difference had no bearing on the

proposed combination—it is worth clarifying that the two measurements are not equivalent, and that Rz_{jis} is, by definition, smaller than Rz . Indeed, as previously explained, Rz is “not to be confused” with Rz_{jis} . Petition, 10; SOLUS-1003, ¶49.

Looking, for instance, to the JIS B 0601: (2001) standard that was cited throughout the Petition, it can be seen that Rz refers to the “sum of height of the largest profile peak height Z_p and the largest profile valley depth Z_v within a sampling length” whereas Rz_{jis} refers to the “sum of the mean of profile peaks from the highest fifth height and the mean of profile depths from the deepest valley to fifth deepest valley.” SOLUS-1010, 10, 24. That is, because Rz reflects only the single largest peak and valley, while Rz_{jis} averages multiple peaks/valleys, Rz necessarily yields a higher value. *Id.*

Accordingly, Dobashi’s purported preference for a surface roughness Rz_{jis} that is smaller than the Rz value reported in Hanafusa has no bearing on the compatibility of the two references. *See* Decision , 16.

B. The Decision Misapprehended or Overlooked Petitioner’s Arguments Regarding the Hanafusa-Dobashi Combination

As noted above, the Decision’s criticism of the proposed Hanafusa-Dobashi combination—mainly the assertion that “neither Petitioner nor Dr. Josefowicz sufficiently explains how or why a POSITA would have been motivated to implement Dobashi’s R_{Sm} values to make Hanafusa’s surface roughness low-

profile”—misapprehends Dobashi’s teachings and overlooks the rationale presented in the Petition for combining the references in light of those teachings. DI, 15.

For example, as the Petition explains, Hanafusa describes that “it is necessary to make the rough surface low-profile” and that “there is no particular limitation on how to make the rough surface low profile... all the known methods for making a rough surface low-profile can be used.” Petition, 11; SOLUS-1004, [0023]. In other words, Hanafusa seeks to make its rough surface into a smooth (*i.e.*, low-profile) surface based on all known methods. As the Petition further explains, “a POSITA would have looked into other references like Dobashi to identify such a known method to make a rough surface low-profile,” for instance because explicitly recognizes that the surface “has small waviness and is smooth when RSm is large.” Petition 11; SOLUS-1005, 6:25-30. That is, motivated by Hanafusa’s desire to make a smooth (*i.e.*, low-profile) surface, a POSITA would have looked to the teachings of Dobashi, which explicitly links surface smoothness to a large RSm value. *See* Petition, 10-11; SOLUS-1003, ¶¶50-51; SOLUS-1005, 6:25-30. While 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 surface smoothness, which is what Hanafusa expressly seeks. *Id.*

Accordingly, the Petition did far more than merely assert that “Hanafusa and Dobashi are directed to the same field of art” as the Decision contends. DI, 13. Indeed, through reasoned analysis, it demonstrated 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. *See* Petition, 9-12; SOLUS-1003, ¶¶46-52. Moreover, because both Hanafusa and Dobashi relate to the manufacture of electrolytic copper foils with enhanced surface roughness characteristics—achieved through similar manufacturing techniques—a POSITA would have had a reasonable expectation of success in implementing the Hanafusa-Dobashi combination. Petition, 11–12; SOLUS-1003, ¶52.

IV. UPDATED STIPULATION

To the extent the Board is concerned that this IPR will not be a true alternative to the district court case, for instance because invalidity assertions based on combinations of art with “unpublished systems prior art” may not necessarily outweigh other *Fintiv* factors that favor discretionary denial, Petitioner provides an expanded stipulation to address such concerns. *Motorola Solutions, Inc. v. Stellar, LLC*, IPR2024-01205, Paper 19 at 3-4 (PTAB March 28, 2025) (“*Motorola*”). Specifically, in addition to the *Sotera* stipulation of March 3, 2025 (SOLUS-1029), it is hereby further stipulated that, should the Board grant this Petition, Petitioner

will not pursue in district court litigation any invalidity assertions based on combinations of prior art patents or printed publications with “unpublished system prior art.” *Motorola*, 3-4. Thus, this updated stipulation moots not only “combinations of the prior art asserted in these proceedings with unpublished system prior art” referenced in the *Motorola* Director Review decision but also combinations of **any** prior art patents or printed publications with such system art. *Id.*, 4.

V. CONCLUSION

For the foregoing reasons, and those discussed in the Petition, Petitioner respectfully requests the Board reconsider its Decision and institute *inter partes* review of the challenged claims of the '689 Patent.

Dated: May 27, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e), the undersigned certifies that on May 27, 2025, a complete and entire copy of this Petitioner's Request for Rehearing by the Director was provided by email, to the Patent Owner, by serving the correspondence address of record as follows:

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