

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOSES LAKE INDUSTRIES, INC.
Petitioner

v.

ENTHONE, INC.
Patent Owner

Case IPR2014-00243
Patent 7,303,992 B2

Before KEVIN F. TURNER, SHERIDAN K. SNEDDEN, and
JEREMY M. PLENZLER, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*

DECISION
Denial of Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Moses Lake Industries, Inc. (hereinafter, “MLI”) filed a petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1-28 of U.S. Patent No. 7,303,992 B2 (“the ’992 Patent”). Patent Owner, Enthone, Inc. (“Enthone”), filed a Preliminary Response (Paper 5, “Prelim. Resp.”). We have jurisdiction under 35 U.S.C. § 314.

The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides:

THRESHOLD.—The Director may not authorize an *inter partes* review to be instituted unless the Director determines that the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.

We conclude that the information presented in the Petition does not demonstrate that there is a reasonable likelihood that MLI will prevail in challenging claims 1-28 as unpatentable under 35 U.S.C. §§ 102 or 103. For the reasons that follow, the Petition is *denied*.

A. *Related Matters*

MLI indicates that the '992 Patent was asserted in *Enthone, Inc. v. Moses Lake Industries, Inc.*, Case No. 1:13-cv-1054, in the U.S. District Court for the Northern District of New York. Pet. 1. U.S. Patent No. 7,815,786 B2, which issued from a divisional application based on the patent application that issued as the '992 Patent, was also asserted in that civil action. U.S. Patent No. 7,815,786 is also the subject of a petition requesting *inter partes* review in Case IPR2014-00246, which is being decided concurrently.

B. *The '992 Patent (Ex. 1001)*

The '992 Patent relates to a method for electrolytically plating copper onto a substrate having submicron-sized interconnect features using a source of copper ions and suppressor compound having polyether groups. Ex. 1001, Abstract. The '992 Patent discusses known systems that rely on so-called "superfilling" or "bottom-up growth" to deposit copper into high aspect ratio features, where the superfilling involves filling a feature from the bottom up, rather than at an equal rate on all its surfaces, to avoid seams and pinching off that can result in voiding. *Id.* at 2:6-11. The '992 Patent discloses a suppressor compound formed from a combination of propylene oxide (PO) repeat units and ethylene oxide (EO) repeat units present in a PO:EO ratio between about 1:9 and about 9:1 and bonded to a nitrogen-containing species, wherein the molecular weight of the suppressor compound is between about 1000 and about 30,000. *Id.* at 3:25-30.

C. *Challenged Claims*

Independent claims 1, 2, and 17, as well as dependent claims 3-16 and 18-28, are challenged by MLI in its Petition. Claims 1 and 17 are illustrative and are reproduced below, with emphasis added:

1. A method for electroplating a copper deposit onto a semiconductor integrated circuit device substrate with electrical interconnect features including submicron-sized features having bottoms, sidewalls, and top openings, the method comprising:

immersing the semiconductor integrated circuit device substrate including submicron-sized features having bottoms, sidewalls, and top openings wherein said submicron-sized features include high aspect ratio features having dimensions such that the high aspect ratio features have aspect ratios of at least about 3:1 into an electrolytic plating composition comprising a source of Cu ions in an amount sufficient to electrolytically deposit Cu onto the substrate and into the electrical interconnect features and *a polyether suppressor compound comprising a combination of propylene oxide (PO) repeat units and ethylene oxide (EO) repeat units present in a PO:EO ratio between about 1:9 and about 9:1 and bonded to a nitrogen-containing species, wherein the molecular weight of the suppressor compound is between about 1000 and about 30,000*; and

supplying electrical current to the electrolytic composition to deposit Cu onto the substrate and *superfill the submicron-sized features by rapid bottom-up deposition at a rate of growth in the vertical direction which is greater than a rate of growth in the horizontal direction.*

17. A method for electroplating a copper deposit onto a semiconductor integrated circuit device substrate with electrical interconnect features including submicron-sized features having bottoms, sidewalls, and top openings, the method comprising:

immersing the semiconductor integrated circuit device substrate into the electrolytic plating composition comprising a source of Cu ions in an amount sufficient to electrolytically deposit Cu onto the substrate and into the electrical interconnect features, an accelerator, and a suppressor; and

supplying electrical current to the electrolytic composition to deposit Cu onto the substrate and *superfill the submicron-sized features by rapid bottom-up deposition at a vertical Cu deposition growth rate in features from the bottoms of the features to the top openings of the features which is greater than 15 times faster than a field deposition growth rate on substrate surfaces outside the features.*

D. Prior Art Relied Upon

MLI relies upon the following prior art references:

Hagiwara	US 6,800,188 B2	Oct. 5, 2004	(Ex. 1006)
Wang	US 7,128,822 B2	Oct. 31, 2006	(Ex. 1007)
Mikkola	US 6,649,038 B2	Nov. 18, 2003	(Ex. 1008)
Martyak	US 2004/0045832 A1	Mar. 11, 2004	(Ex. 1009)
Ishikawa	US 6,518,182 B1	Feb. 11, 2003	(Ex. 1010)
Dubin	US 6,491,806 B1	Dec. 10, 2002	(Ex. 1011)
Mikkola	US 2004/0217009 A1	Nov. 4, 2004	(Ex. 1013)
Brown	US 2004/0138075 A1	Jul. 15, 2004	(Ex. 1016)
Stridde	US 6,420,311 B1	Jul. 16, 2002	(Ex. 1017)
Nakada	US 2008/0264798 A1	Oct. 30, 2008	(Ex. 1018)
Eckles	US 4,384,930	May 24, 1983	(Ex. 1019)
Willis	US 4,347,108	Aug. 31, 1982	(Ex. 1020)

Case IPR2014-00243
Patent 7,303,992 B2

BASF, Surfactants: Pluronic and Tetronic (1999) (Ex. 1012) (“BASF Catalog”).

Alan C. West et al., *A Superfilling Model that Predicts Bump Formation*, 4 *Electrochemical and Solid-State Letters* 4 (7) (July 2001) (Ex. 1014) (“West Article”).

Huntsman LLC, Technical Bulletin XTJ-504 (2003) (Ex. 1015) (“Huntsman Technical Bulletin”).

Valery M. Dubin, *Electrochemical Aspects of New Materials and Technologies in Microelectronics*, 70 *Microelectronic Engineering* 461-469 (2003) (Ex. 1021) (“Intel Article”).

Irving R. Schmolka, *A Review of Block Polymer Surfactants*, *J. Am. Oil Chemists’ Soc.* 110 (March 1977) (Ex. 1024) (“BASF Article”).

E. Alleged Grounds of Unpatentability

MLI asserts the following grounds of unpatentability:

Basis	References	Claim(s)
§ 102	Hagiwara	1-15, 17-22, and 26-28
§ 102	Wang	1-28
§ 103	Hagiwara and Wang in view of “Other References” ¹	1-28

¹ While MLI cites this as a single ground in its Petition, we agree with Enthone that this ground actually constitutes at least 34 potential grounds of unpatentability being raised therein. Prelim. Resp. 37-38.

II. ANALYSIS

A. Claim Construction

As a first step in our analysis for determining whether to institute a trial, we determine the meaning of the claims. In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Under the broadest reasonable construction standard, claims are to be given their broadest reasonable interpretation consistent with the specification, and the claim language should be read in light of the specification, as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). This means that the words of the claim are given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989). In this regard, an inventor is entitled to be his or her own lexicographer of patent claim terms by providing a definition of the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

MLI provides specific construction of the claim terms “suppressor” and “superfill.” Pet. 4-5. With respect to “suppressor,” MLI argues that the broadest reasonable interpretation is “a compound comprising a combination of propylene oxide (PO) repeat units and ethylene oxide (EO) repeat units present in a PO:EO ratio between about 1:9 and 9:1 and bonded to a nitrogen-containing species, wherein the molecular weight of the suppressor compound is between about 1,000 and 30,000.” *Id.* at 4. Enthone generally

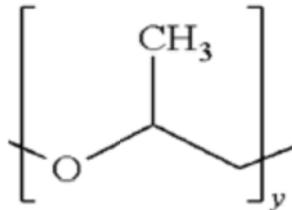
agrees with that definition but adds that “‘Suppressor’ is further limited to compounds that provide the function of suppression in the claimed method.” Prelim. Resp. 7. The broadest reasonable interpretation of “suppressor” at least requires “a compound comprising a combination of propylene oxide (PO) repeat units and ethylene oxide (EO) repeat units present in a PO:EO ratio between about 1:9 and 9:1 and bonded to a nitrogen-containing species, wherein the molecular weight of the suppressor compound is between about 1,000 and 30,000.” *See* Ex. 1001 3:25-30. Whether a ‘suppressor’ is also limited to ‘compounds that provide the function of suppression in the claimed method’ is not material to our decision. Therefore, we do not reach that issue.

With respect to “superfill,” MLI argues that the proper interpretation is “filling a feature from the bottom up, rather than at an equal rate on all its surfaces, to avoid seams and pinching off that can result in voiding.” Pet. 4-5. Enthone accepts MLI’s definition. Prelim. Resp. 8. We adopt this construction for purposes of this decision.

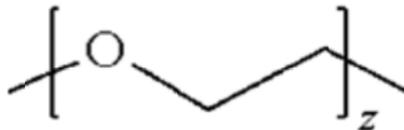
Enthone also seeks specific constructions of “bonded” and “nitrogen-containing species” that we are not persuaded are in need of a specific construction. *Id.* at 8-9.

With respect to the claim limitations “propylene oxide (PO) repeat units” and “ethylene oxide (EO) repeat units,” we agree with Enthone that the constructions supplied are the broadest reasonable and in keeping with the evidence cited in its Preliminary Response. Prelim. Resp. 9-10. Thus, we are persuaded that “propylene oxide (PO) repeat units” means the chemical structure represented by the formula C_3H_6O with the following

structure reproduced below:



and that “ethylene oxide (EO) repeat units” means the chemical structure represented by the formula C_2H_4O with the following structure reproduced below:



We adopt the above specific constructions for the purposes of this Decision.

B. Principles of Law

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). “A prior art reference that discloses a genus still does not inherently disclose all species within that broad category” but must be examined to see if a disclosure of the claimed species has been made or whether the prior art reference merely invites further experimentation to find the species. *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367 (Fed. Cir. 2004).

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966).

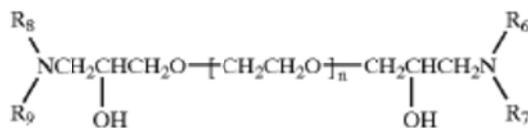
The level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978).

C. Anticipation by Hagiwara

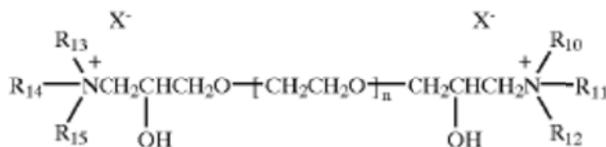
MLI asserts that claims 1-15, 17-22, and 26-28 of the '992 Patent are anticipated under 35 U.S.C. § 102 by Hagiwara. Pet. 6-21. Hagiwara describes a copper plating bath comprising a reaction condensate of an amine compound and glycidyl ether or a quaternary ammonium derivative of this reaction condensate. Ex. 1006, Abstract, 2:53-56. Hagiwara describes the reaction condensate as the active component that provides advantageous plating properties and uses conventional plating bath components such as various sources of copper ions, acids, brighteners, chlorine ions, levelers, and surfactants. *Id.* at 4:41-65, 7:66-68, 8:38-9:52.

MLI argues that Hagiwara teaches all of the elements of claims 1-15, 17-22, and 26-28. Enthone argues that Hagiwara fails to teach specific elements of independent claims 1, 2, and 17. Prelim. Resp. 13-16, 18-20. We find Enthone's arguments to be persuasive.

Claim 1 recites, in part, that the method uses "a polyether suppressor compound comprising a combination of *propylene oxide* (PO) repeat units." MLI relies on Formulas III and IV of Hagiwara in its analysis, with the formulas reproduced below:



(Formula III, Ex. 1006, 6:5-15) and



(Formula IV, Ex. 1006, 6:20-30).

The disclosed compounds are argued by MLI as being equivalent to the claimed propylene oxide repeat unit and the ethylene oxide repeat units, with the center -CH₂CH₂O- being the ethylene oxide repeat unit and "[t]he groups to the left and right of the EO repeat units [being] derived from propylene oxide (PO)." Ex. 1026, ¶ 58; Pet. 8-9. Enthone argues that MLI's assertion that the alleged PO repeat units are derived from propylene oxide does not comport with the proper construction of that claim element.

Prelim. Resp. 13. Based on the claim construction adopted above, we agree. The 2-hydroxypropylene spacers, the groups on either side of the center -CH₂CH₂O- element, are not equivalent to the PO repeat units claimed in claim 1.

Enthone also argues that the 2-hydroxypropylene spacers in Hagiwara “are not derived from propylene oxide” either. Prelim. Resp. 14. “Instead, they are derived from the condensation reaction between an amine (e.g., dimethylamine) and glycidyl moieties of a diglycidyl ether of polyethylene glycol, the reaction by which the [above-cited compounds] are prepared.” *Id.* Enthone also contends that “[a]lthough a propylene oxide outer *terminal unit* can be a monovalent 2-hydroxypropyl group, a propylene oxide *repeat unit* cannot be divalent 2-hydroxypropylene.” *Id.* at 15.

In addition, MLI argues that Hagiwara discloses that “tetronic-type surfactants” may be used (Pet. 10, citing Ex. 1006, 9:46), and that BASF Catalog discloses that TETRONIC® molecules have a specific structure and particular properties. *Id.* As Enthone argues, however, Hagiwara fails to suggest any particular tetronic surfactant or how any such surfactant would provide the recited superfilling properties. Prelim. Resp. 22-24. We agree with Enthone.

It is well established that the disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus. There may be many species encompassed within a genus that are not disclosed by a mere disclosure of the genus. On the other hand, a very small genus can be a disclosure of each species within the genus. *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991, 999 (Fed. Cir. 2006) (citations omitted). Thus, while Hagiwara may disclose “tetronic-type

surfactants,” and some of those surfactants may have structures and properties commensurate with those claimed, such a disclosure does not necessarily anticipate the claimed polyether suppressor of claim 1.

Additionally, MLI relies on an “inherent anticipation analysis for claim 1,” provided in Dr. West’s testimony. Pet. 10; Ex. 1026, ¶¶ 64-65. That analysis provides that “[s]ince the suppressors disclosed in Hagiwara fall within the scope of the claims (*see* claim construction of “suppressor,” *supra* ¶48), the impact of the suppressor on the rate of growth in the vertical and horizontal directions was inherently disclosed in Hagiwara.” Ex. 1026, ¶ 64. However, as discussed above, we are not persuaded that Hagiwara’s suppressors fall within the scope of claim 1. As such, any inherent properties of the compounds disclosed and claimed in the ’992 Patent cannot be assumed for the compounds disclosed in Hagiwara. Thus, we are not persuaded that Hagiwara discloses the compounds recited in claim 1, nor that it discloses, implicitly or inherently, the superfill properties recited in claim 1.

With respect to independent claim 2, MLI relies on the same analysis applied in claim 1. Pet. 11-12. MLI has not demonstrated that the Hagiwara discloses a comparative suppressor with the formula recited in claim 2. Also, MLI relies on same inherent anticipation analysis discussed above, which we do find to be persuasive. In addition, MLI relies on Dr. West’s testimony in the claim chart for claim 2, but we note that the testimony discusses that “the suppressor disclosed in Hagiwara falls within the scope of claim 1 of the ’992,” in the relevant sections, instead of claim 2. Ex. 1026

¶¶ 66-73. As such, we are not persuaded that MLI had demonstrated that Hagiwara anticipates claim 2.

With respect to independent claim 17, that claim recites the step of “superfill[ing] the submicron-sized features by rapid bottom-up deposition at a vertical Cu deposition growth rate in features from the bottoms of the features to the top openings of the features which is greater than 15 times faster than a field deposition growth rate on substrate surfaces outside the features.” MLI, in its claim chart for claim 17, cites the anticipation chart for claim 2, and again invokes its inherent anticipation analysis and Dr. West’s testimony. Pet. 18. As discussed above, we are not persuaded by those arguments and thus conclude that MLI has not demonstrated that claim 17 is anticipated by Hagiwara.

As such, we are not persuaded that MLI has shown a reasonable likelihood that it will prevail in challenging claims 1-15, 17-22, and 26-28 as anticipated under 35 U.S.C. § 102 by Hagiwara.

D. Anticipation by Wang

MLI asserts that claims 1-28 of the ’992 Patent are anticipated under 35 U.S.C. § 102 by Wang. Pet. 21-36. Wang describes an electrolytic plating composition comprising an additive having a dual function as both a suppressor and a leveler, with the additive having multiple moieties providing a level copper deposit and suppressing copper plating. Ex. 1007, 2:39-49. Wang discloses that these compounds are a reaction product of a compound containing one or more heteroatoms, a spacer group, and an alkylene oxide. *Id.*

MLI asserts that Wang discloses “[a] wide variety of compounds capable of suppressing copper plating Exemplary of such compounds include, but are not limited to alkylene oxide compounds.” Pet. 23; Ex. 1007, 5:38-42. Wang also provides “[p]articularly useful polyalkylene glycols, such as polyethylene, polypropylene, and polybutylene glycols, as well as poly(EO/PO) copolymers.” Ex. 1007, 6:8-13. Wang also discloses “[a]n example of such an alkylene oxide compound is a compound including EO groups, PO groups and a third ether linkage,” of an alkylene oxy compound. *Id.* at 5:67-6:7.

Enthone argues that Wang does not teach each element of the claims, specifically the repeat units being “bonded to a nitrogen-containing species,” per claim 1. Prelim. Resp. 26-28. As Enthone points out, every working example in Wang is directed to the reaction of imidazole with a polyalkylene oxide and epichlorohydrin, with epichlorohydrin acting as a spacer. *Id.* at 25. We agree that any combination of PO repeat units and EO repeat units, in Wang, is at most linked to the imidazole through a 2-hydroxypropylene spacer, just as in Hagiwara. As such, we are not persuaded that Wang discloses that the EO/PO repeat units are bonded to a nitrogen-containing species, per claim 1.

Enthone also counters MLI’s assertion that the spacer can be ignored because it is described as “optional” in Wang. *Id.* at 27-28; Pet. 29, 36. We agree with Enthone that there is no enabling disclosure in Wang of any dual additive that does not contain a spacer. Even taking Dr. West’s testimony on this point (Ex. 1026, ¶¶ 190, 241) as correct, i.e., that the optional nature of

the spacer group allows for a direct bond to nitrogen, we are persuaded that this is purely speculative in view of the totality of Wang's disclosure.

MLI also points out that "Wang discloses '[i]n particular, these compounds are a reaction product of a **compound containing** one or more heteroatoms selected from the group consisting of sulfur, nitrogen and a combination of sulfur and **nitrogen**, a spacer group **and an alkylene oxide**.' (2:46-49.)" Pet. 24. However, the specific recitation in Wang (Ex. 1007, 9:22-45) of the use of heteroatoms of nitrogen, sulfur, or oxygen occurs with respect to the use of brighteners and brightening agents. It is not clear that this demonstrates the structure of claim 1, namely "a combination of propylene oxide (PO) repeat units and ethylene oxide (EO) repeat units present in a PO:EO ratio between about 1:9 and about 9:1 and bonded to a nitrogen-containing species." Rather, we agree with Enthone that "[a]ssigning a particular structure to the Wang reaction product is at best a matter of speculation" because assuming that the overall reaction product would have repeat units bonded to a nitrogen-containing species would be mere speculation. Prelim. Resp. 26.

Similar to the discussion above, MLI relies on an inherent anticipation analysis and other explanations provided by Dr. West's testimony to satisfy the recitation of claim 1 that submicron-sized features are superfilled by rapid bottom-up deposition at specified growth rates. Pet. 24; Ex. 1026, ¶¶ 145-155. However, as discussed above, we are not persuaded the suppressors disclosed in Wang fall within the scope of claim 1, such that the superfill properties would need to be inherently disclosed.

With respect to independent claims 2 and 17, MLI has relied on the

same anticipation claim chart section and inherency analysis provided for claim 1. Pet. 25, 32-33. We find this no more persuasive with respect to anticipation of claims 2 and 17 than we do for anticipation of claim 1, as discussed above.

As such, we are not persuaded that MLI has shown a reasonable likelihood that it will prevail in challenging claims 1-28 as anticipated under 35 U.S.C. § 102 by Wang.

E. Obviousness over Hagiwara and Wang in view of “Other References”

MLI asserts that the “Other References” (Exs. 1008-1021 and 1024) all qualify as prior art (Pet. 36-38), and that Hagiwara and Wang, each independently “or in combination with other references disclosed within” render obvious all claims of the ’992 Patent. *Id.* at 38. As discussed above, we are persuaded that the “single” ground proffered by MLI is actually multiple grounds of unpatentability, i.e., 34 potential grounds, with each ground requiring specific support and analysis to be considered. MLI addresses specific claims and combinations (*id.* at 38-40), but as to a rationale to combine the teachings of the references provides only the following:

a person of ordinary skill in the art would have understood that the elements from the above combination of references would have been nothing more than “[c]ombining prior art elements according to known methods to yield predictable results,” “[u]se of known technique[s] to improve similar devices (methods, or products) in the same way,” “[a]pplying a known technique to a known device (method, or product) ready for improvement to yield predictable results,” and “[o]bvious to

try’ – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success.” MPEP § 2143(A), (C), (D), (E).

Id. at 40. MLI’s claim charts for obviousness (*id.* at 42-59) cite to specific portions of the “Other References” and, at points, detail that “further explanation” may be found in Dr. West’s Declaration. *Id.* Dr. West’s Declaration provides specific discussion of the references, indicates that they are in the same field of endeavor as the ’992 Patent, and mimics the rationale for combining the teachings from the Petition cited above. Ex. 1026, ¶¶ 244-1091. We are not persuaded that this is sufficient for the MLI to demonstrate *prima facie* cases of obviousness.

MLI has failed to resolve any differences between the claimed invention and the cited references, identify any specific proposed modifications to the references, or explain persuasively why one skilled in the art would have made any specific modifications to the references relied on in the challenges described in this ground of unpatentability. At least one of the *Graham* factors discussed above, namely explaining any differences between the claimed subject matter and the prior art, is not discussed in MLI’s Petition; rather, the Petition merely recites different elements of the “Other References,” and does not indicate how or why those elements would have been adopted by one of ordinary skill in the art to be used in the methods of Hagiwara and Wang. For example, MLI details that Martyak discloses amines that can be used as surfactants (Pet. 44), but the Petition is bereft of detail as to why the amines of Martyak would be used in Hagiwara or Wang by ordinarily skilled artisans, other than the generic prescription that prior art elements can be combined, as discussed above.

We are also persuaded that Dr. West's testimony is equally unavailing to MLI's grounds of unpatentability. Taking the same example discussed above, Dr. West argues that Hagiwara and Martyak (Ex. 1026, ¶ 271), and Wang and Martyak (*id.* at ¶ 275), are in the "same field of endeavor as the '992 patent, namely electroplating copper onto a substrate with interconnect features," and that "one of skill in the art would recognize that both of these references disclose similar polyether suppressor molecules, and that these molecules are interchangeable in copper electroplating methods." *Id.* at ¶¶ 271, 275. These are followed with the same pronouncement of combining known elements as found in the Petition. *Id.* Given the large number of compounds detailed in even the cited section of Martyak (Ex. 1009, ¶55), it is not clear why one of ordinary skill in the art would have chosen those specific compounds that are essential to MLI's ground of unpatentability teaching or suggesting the elements of claim 1. Dr. West's testimony is generic to any type of combination and does not address in a meaningful way the specific combination being proffered.

We are not persuaded that Dr. West's testimony is sufficient to demonstrate a reasonable likelihood that MLI would prevail with respect to the obviousness grounds. *See* 37 C.F.R. 42.65(a) (Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.). Nothing in the Federal Rules of Evidence or Federal Circuit jurisprudence requires a fact finder to credit the unsupported conclusions or assertions of an expert witness. *Rohm and Haas Co. v. Brotech Corp.*, 127 F.3d 1089, 1092 (Fed. Cir. 1997). *See also Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1373-74 (Fed. Cir. 2008);

ActiveVideo Networks, Inc. v. Verizon Communications, Inc., 694 F.3d 1312, 1327-28 (Fed. Cir. 2012) (Testimony that is generic and bears no relation to any specific combination of prior art elements is insufficient to support a determination of obviousness.).

We are also persuaded by Enthone's characterization of the art of the instant patent and prior art references being "unpredictable." Prelim. Resp. 41. "To the extent an art is unpredictable, as the chemical arts often are, *KSR*'s focus on these 'identified, predictable solutions' may present a difficult hurdle because potential solutions are less likely to be genuinely predictable." *Eisai Co. Ltd. v. Dr. Reddy's Laboratories, Ltd.*, 533 F.3d 1353, 1358 (Fed. Cir. 2008). Enthone has provided evidence (Ex. 2005) that suggests that the plating mechanism involved "is still not fully understood and continues to be investigated." *Id.* at 5. Thus, we agree with Enthone that MLI must provide more than conclusory expert testimony, as discussed above, and conclusory rationales to combine the teachings, to present a *prima facie* case of obviousness. Prelim. Resp. 43.

Based on the Petition and evidence provided, we are not persuaded that the "Other References" necessarily cure the deficiencies in the challenges based on Hagiwara and Wang discussed above. Additionally, MLI must demonstrate a reasonable likelihood to prevail based on "the information presented *in the petition*," 35 U.S.C. § 314(a), where submitted exhibits can support that information but should not be the sole basis of the reasonable likelihood determination.

For the foregoing reasons, we are not persuaded that there is a reasonable likelihood that MLI will prevail in demonstrating that claims 1-

28 of the '992 Patent are unpatentable over combinations of Hagiwara, Wang, and "Other References."

III. CONCLUSION

For the forgoing reasons, we have not identified any of MLI's proposed grounds of unpatentability on which MLI likely will prevail. As such, MLI has failed to demonstrate a reasonable likelihood of prevailing on its assertions as to any of the challenged claims.

IV. ORDER

It is ORDERED that the Petition is denied as to all challenged claims.

It is FURTHER ORDERED that no *inter partes* review is instituted.

Case IPR2014-00243
Patent 7,303,992 B2

For PETITIONER:

Michael J. Shuster
Rajiv P. Patel
Fenwick & West LLP
ptoc@fenwick.com

For PATENT OWNER:

John K. Roedel, Jr.
Paul I.J. Fleischut
Senniger Powers LLP
jroedel@senniger.com
pfleischut@senniger.com