

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO
EASTERN DIVISION**

TERVES LLC,

Plaintiff,

vs.

YUEYANG AEROSPACE NEW
MATERIALS CO., LTD., et al.,

Defendants.

Case No. 1:19-cv-1611-DCN

Judge Donald C. Nugent

**DEFENDANTS' RESPONSE TO
PLAINTIFF'S MOTION FOR SUMMARY JUDGMENT**

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I. SUMMARY

Plaintiff failed to carry its burden of proof regarding any of the issues for which it seeks summary judgment. Regarding anticipation of Plaintiff's claims, Defendants are actually entitled to summary judgment, a fact underscored by the USPTO's recent rejection of all the '653 claims in the ongoing reexam. (Prop. A). Plaintiff failed to prove infringement of any of the claims, primarily because it did not prove the existence of intermetallic phases (Prop. B(1)(b)), but also because it failed to establish that Defendants sell oilfield tools (Prop. B(2)(b)) and because it failed to address a 50 micron limit. (Prop. B(2)(c)) Finally, Plaintiff's professed ignorance of relevant prior art it failed to disclose cannot stand up to scrutiny of the established facts. (Prop. C)

II. MATERIAL FACTUAL DISPUTES.

Defendants admit Facts 1, 2 and 12. All other facts are denied as discussed below.

Fact 3 fails to disclose that the Chinese Patent Office ("CPO") rejected the claims based on Xiao. (Dkt. 134 at Unidsp. Mat. Fact ("UMF") 9.) Fact 3 also fails to recite that Plaintiff amended and narrowed its claims in view of the rejection. (Dkt. 134, UMF 10.) Plaintiff conceded to the CPO that Xiao taught the composition, structure, and the dissolution rate of its claims, destroying the novelty of all asserted claims. (*Id.* (arguments to the CPO focus on amendment to limit manufacturing temperatures, not to the compositions, structure, or dissolution rate).

Fact 4 focuses on what its Chinese counsel knew versus what Turung knew.¹ However, it omits key details. First, it asserts that Chinese counsel stated its belief that it could overcome the rejection, but it omits how that was done: by a narrowing amendment of Plaintiff's claims. (Dkt.

¹ As a matter of law, knowledge of Plaintiff's Chinese counsel is imputed to Plaintiff, so it cannot claim ignorance of counsel's knowledge. Turung breached his duty to disclose CPO rejection to the USPTO under 37 CFR § 1.56 which imposed upon Turung a "duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section." 37 CFR § 1.56. Rejection by a foreign patent office is material to the patentability. Turung knew about the CPO claim rejection and failed to disclose it.

134, UMF 10.) It also omits what Plaintiff conceded in the CPO: that the composition, structure, and dissolution rates disclosed in Xiao anticipate Plaintiff's composition of matter claims. (*Id.*) Turung knew the Chinese claims were amended. (Dkt. 134, Ex. 5 at 211:1-4.)

Fact 5 leaves out that Plaintiff failed to disclose to the USPTO the Chinese office action rejecting the claims of the Chinese patent on the basis of Xiao and Plaintiff's narrowing amendment to overcome Xiao.² (Dkt. 134, UMFs 9, 10.)

Fact 6 does not mention that once the USPTO was provided with a full English translation of Xiao, it rejected all of the challenged claims based on Xiao. (Ex. 1, Nov. 19, 2021 office action in the currently ongoing ex parte re-examination proceeding.) Plaintiff's response to the rejection is due on January 19, 2022.

Fact 7 fails to advise the Court of the sweeping breadth of the duty of disclosure and candor. See Prop. III(C)(1), below. Plaintiff's hyper focus on who possessed what document when evades the fundamental duty on the "applicant" (here, the Plaintiff) to disclose and be candid about information relevant to patentability, a duty which is "especially strong" since Plaintiff's patent claims were rejected by the CPO in view of Xiao. See fn. 2, below (citing cases and MPEP).

Facts 8 - 11 ignore that the inventors were not the applicant; Plaintiff was the applicant. (Dkt. 134, UMFs 1 - 4.) Also, Turung and litigation counsel, who are also licensed by the USPTO and have a duty of candor, knew about Xiao and the CPO's rejection of claims based on it. (*Id.*, UMFs 9, 10, 13, 14). Plaintiff possessed a full English translation of Xiao, the CPO office action

² Plaintiff's citation to MPEP 609.04(a)(III) in support of its proposition that the English abstract of Xiao was a sufficient disclosure is misleading. It omits that where **"the information listed is not in the English language, but was cited in a search report or other action by a foreign patent office in a counterpart foreign application, the requirement for a concise explanation of relevance can be satisfied by submitting an English-language version of the search report or action which indicates the degree of relevance found by the foreign office."** (Emphasis added.) Submitting the abstract was not enough. Plaintiff had a duty to advise the USPTO that the CPO rejected the claims based on Xiao, a duty that is *"especially strong"* where it has been used in rejecting the same or similar claims in the foreign application or where it has been identified in some manner as particularly relevant." MPEP 200106(a).

and response. (*Id.*) Even if no translations were possessed by Plaintiff, Plaintiff's Chinese patent counsel, who also speaks English, could have prepared a summary of the CPO office action and his response, which Plaintiff could have submitted to the USPTO.

Fact 13 ignores the scanning electron microscope ("SEM") testing performed for Dr. Swanger. The SEM results do NOT support infringement. Specifically, the SEM results indicate that the separate microstructures seen in Dr. Swanger's figures are not "nickel rich," but rather have substantially the same composition as the surrounding material. (Ex. 2, Swanger July 27, 2021 rep. at Fig. 3 – 5.) (figures showing results of SEM scans call spectrums); (Ex. 3, Medlin's Aug. 27, 2021 rebuttal rep. at pp. 3-5 (discussing the fact that the scans do not show nickel or copper rich phases).) The claims all require a separate, secondary phase rich in, for example, nickel or copper. (Dkt. 134, UMFs 1 – 4) (the Plaintiff's Patents are replete with discussions of the intermetallic Mg₂Ni, CuMg₂ and the like, and all claims require an "intermetallic phase" or in situ particles rich in the secondary metal).) Plaintiff failed to establish that Defendants' products have the required intermetallic phase rich in a secondary metal. A further problem is presented by the fact that the evidence submitted with Plaintiff's Motion only includes spectra for three accused products (AJM 6, 16, and 23) (Ex. 2, Swanger July 27, 2021 rep. at pp. 15, 16.) Regarding the remaining four accused products, Swanger indicated that "similar results" were "provided in materials produced...in litigation." (*Id.* at p. 14.) Plaintiff's Final Infringement Contentions are merely a cut-and-paste of the claims along with a conclusory statement. In a summary judgment motion, a party is required to produce admissible evidence and to particularly point out among the evidence what it is relying on; simply noting that the evidence was produced is insufficient.³

³ FRCP 56(c)(1)(A) requires the moving party to cite to "particular parts of materials in the record." Courts generally require pinpoint citations to admissible evidence supporting alleged facts. See, e.g., *Kornely v. Carson's Ribs of Deerfield, Inc.*, 2000 U.S. Dist. Lexis 17722, *5 (N.D. Ill. Dec. 4, 2000) (the court is not required to "engage in a treasure hunt to uncover the evidence a party relies on").

Fact 14 complains that Defendant's expert did not provide legal opinions, but he was not required to do so, and courts generally do not allow expert testimony on the law.⁴ Fact 14 ignores Medlin's opinions directed at the absence of any proof that intermetallics exist in Defendants' products. See Resp. to Fact 13, above. Plaintiff's claims require an intermetallic phase having a fixed chemical composition such as Mg_2Ni or $MgCu_2$. (Dkt. 134, Ex. 3 at Claim 1 (requiring "intermetallic phases"), col. 11, line 42; col. 12, line 9.)

Fact 15 is misleading. It recites that Dr. Medlin did some testing, some of which agreed with Dr. Swanger's testing. However, it glosses over the absence of nickel or copper rich intermetallic phases in Defendants' products. See Resp. to Fact 13, above. The similarities in chemistries referred to relates to the overall composition of Defendants' alloys. Plaintiff must not only demonstrate overall compositions within the ranges claimed, but it must also demonstrate that intermetallic phases exist which are, for example, nickel rich. That is, Plaintiff must show that two different phases exist: a first which is primarily magnesium, and a second phase which is rich in a secondary material such as nickel or copper. SEM testing conducted on Swanger's behalf failed to establish this key aspect. (Ex. 3, Medlin's Aug. 27, 2021 rebuttal rep. at pp. 3-5 (discussing the fact that the scans do not show nickel or copper rich phases).) The claims all require separate secondary phases rich in, for example, nickel or copper. (Dkt. 134, UMFs 1 – 4) (the Plaintiff's Patents are replete with discussions of the intermetallic Mg_2Ni , $CuMg_2$ SMMg phase and the like, and all claims require an "intermetallic phase" or in situ particles.)

Facts 16 – 19 complain that Defendants did not attempt to second guess all of Plaintiff's testing and analysis. Defendants are not required to prove that they do not infringe; rather, the

⁴ Questions of law are generally reserved for the court, and legal opinions on the law are generally improper. *Chiaverini v. City of Napoleon*, 2021 U.S. Dist. Lexis 189321, *7 (N.D. Ohio Sept. 30, 2021) (striking portions of an expert report that comprise "inadmissible legal opinion and improper expert testimony").

burden is on Plaintiff to prove that Defendants do infringe.⁵ Plaintiff failed to prove that, for example, intermetallics exist in Defendants' products. See Rep. to Facts 13 and 15.

Section III of Plaintiff's statement of facts contains alleged Facts 20 – 26 which primarily address what Plaintiff believes Dr. Medlin failed to do. The alleged omissions are based on a narrow reading of Dr. Medlin's reports and testimony and asserts the absence of a fact, rather than its existence. For example, Plaintiff alleges in Fact 24 that Dr. Medlin did not opine on either "inequitable conduct" or on the "materiality" of various references. However, Dr. Medlin's report includes a table with prior art references, the first of which is Xiao. (Ex. 4, Medlin's July 27, 2021 rep. at p.2.) The word Xiao appears in Dr. Medlin's report and attached documents 856 times, which strongly implies "materiality." In addition, Dr. Medlin states in ¶ 7 that all the claims of the asserted patents "are either anticipated by Xiao and/or obvious over the combination of Xiao and Hassan." (Ex. 4, Medlin's July 27, 2021 rep.) That is an obvious opinion that Xiao is material, and the USPTO agreed with Dr. Medlin. (Ex. 1, Nov. 19, 2021 office action rejecting all claims.) The foregoing reveals the inanity of Plaintiff's assertion in Fact 25 that Dr. Medlin offered no opinions on patentability. Given the formatting of the Plaintiff's "facts" (alleging the absence of a fact rather than its existence), Defendants are forced to generally refer the Court to the 358 pages of Dr. Medlin's July 27, 2021 report with exhibits (Ex. 2), his Aug. 27, 2021 rebuttal report (Ex. 3) as well as his Oct. 15, 2021 deposition. (Ex. 5). In addition, the USPTO rejected all of the '653 Claims in view of Xiao. (Ex. 1, Nov. 19, 2021 office action rejecting Plaintiff's claims.)

Fact 26 mischaracterizes Dr. Medlin's report as illustrated in the following table.⁶

⁵ "Plaintiff bears the burden of proving infringement." *Rothschild v. Ford Motor Co.*, 2 F. Supp. 2d 941, 946 (E.D. Mich. 1998) (relying on *Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1468 (Fed. Cir. 1993)).

⁶ There is an internal conflict between Plaintiff's allegations in the first part of Fact 26 and the second.

PLAINTIFF'S ALLEGATIONS FROM FACT 26	ACTUAL EVIDENCE FROM DR. MEDLIN'S JULY 27, 2021 REPORT (EX. 4)
Plaintiff alleges that Dr. Medlin only challenges the following '653 claims as anticipated: 1, 4, 5, 29, 37, 41, 43, 45, 49, 69, and 70.	Specific grounds for anticipation (pp. 48 – 107) in addition finds claim 73 anticipated.
	Specific grounds for anticipation (pp. 107 – 136) in addition finds claims 8, 25, 33, 55, and 74 anticipated and/or obvious.
	Specific grounds for anticipation (pp. 162 - 166) in addition finds claims 11, 13, 71 and 73 anticipated and/or obvious.
	In view of the foregoing, Dr. Medlin testifies that the following claims are anticipated in addition to those identified by Plaintiff: 8, 11, 13, 25, 33, 55, 71, 73, and 74. ⁷
Plaintiff alleges that Dr. Medlin only challenges the following '653 claims as obvious: 7, 12, 13, 25, 33, 55, and 74.	Specific grounds for obviousness (pp. 136 – 162) in addition finds claim 71 obvious.

In addition, Plaintiff ignores Defendants' invalidity contentions, which provide additional support for invalidity of all asserted claims. (Ex. 6, Final Invalidity Contentions.) One significant point that bears emphasis here is the importance of Dr. Swanger's concession at deposition that "magnesium alloy" can supply any element not expressly provided in the prior art disclosures.⁸ (Ex. 7, Swanger's Oct. 18, 2021 dep. at 179:16 – 180:20.) Cobalt is not disclosed by Xiao as an additive, though one skilled in the art would have known about it before the priority date of the Plaintiff's patent. (Ex. 4, Medlin July 27, 2021 rep. at ¶¶350, 423, 428, 501.) The fact that Cobalt is not disclosed by Xiao is thus no problem to anticipation since the Cobalt can be supplied by way of the "magnesium alloy." Plaintiff must take the bitter with the sweet: including a broad term like "magnesium alloy" in its claims allows it to assert broader coverage, but it also exposes its claims to invalidation based on a broader range of prior art.

⁷ The USPTO just agreed with Dr. Medlin in the pending ex parte re-exam, rejecting the all claims. (Ex. 1, Nov. 19, 2021 office action.)

⁸ The fact that the "magnesium alloy" can supply any element is a separate basis for Defendants' indefiniteness challenge to the Plaintiff's Patents. (Dkt. 134, pp. 17 – 19.) However, in the context, the vagueness of the "magnesium alloy" allows it to supply the Cobalt that is not expressly referenced by Xiao.

III. ARGUMENT AND AUTHORITY

A. Plaintiff's Claims are Anticipated or Obvious in View of Prior Art, Most Notably Xiao.

1. Plaintiff's '653 claims stand rejected.

All of the claims of the '653 Patent that the Plaintiff as asserted in this litigation stand rejected in the USPTO.⁹ On Nov. 19, 2021, the USPTO rejected claims 1-5, 9, 11, 29-32, 37-50, 52-54, 56, 57, 59-62, 64, 66, 67, 69, 70, 72 and 73 under 35 U.S.C. §102(a)(1) as being anticipated by Xiao. (Ex. 1, Nov. 19, 2021 USPTO Office Action at 3.) In addition, the USPTO rejected claims 8, 25-28, 33-36, 55, 58, and 74-76 under 35 U.S.C. §103 as being unpatentable over Xiao. (*Id.* at 13-17.) Lastly, the USPTO rejected Claims 7, 12-16, 18-21, 23-24 and 71 under 35 U.S.C. 103 as being unpatentable over Xiao in view of Hassan. (*Id.* at 17-21.) Therefore, all of the claims asserted by Plaintiff in this litigation as well as claims not asserted by Plaintiff stand rejected by the USPTO.

Plaintiff cites *Alexsam, Inc. v. IDT Corp.*, 715 F.3d 1336, 1348 (Fed. Cir. 2013) for the notion that an expert opinion is a requisite for judgment on invalidity. Plaintiff misstates the holding. “[E]xpert testimony regarding matters beyond the comprehension of laypersons is sometimes essential, particularly in cases involving complex technology.” *Id.* at 1347 (citations omitted). However, the Defendants fail to mention that the federal “KSR and our later cases establish that the legal determination of obviousness may include recourse to logic, judgment, and common sense, in lieu of expert testimony. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1239 (Fed. Cir. 2010). In short, expert testimony is not required. Nevertheless, Defendants provided evidence including Dr. Medlin’s testimony establishing invalidity, which is now bolstered by the recent office action (Ex. 1.)

⁹ The decision of patent examiner at the USPTO stands in contrast to Plaintiff’s expert, Dr. Swanger who stated in a conclusory manner that the ‘653 and ‘740 claims are not invalid “[b]ecause Xiao does not disclose each and every element of the claims that have been asserted from the ‘653 and ‘740 patents.” (Ex. 7, Swanger Oct. 18, 2021 dep. at 17:22-24.)

2. Plaintiff's '740 Claims are invalid for the same reasons as the '653 claims.

The USPTO's rejection of the '653 patents mirror the invalidity arguments made by the Defendants in their motion for summary judgment (Dkt. 134.) Although the '740 patent is not currently the subject of reexamination, the invaliding arguments made in Defendants' Mot. for Summ. J. are analogous to arguments for the '653 patent. That is, Xiao anticipates or makes obvious all the claims in the '740 patent or Xiao in light of Hasan makes the '740 claims obvious. (Ex. 6, Defs.' Final Inv. Contentions at App. D ("Defs.' Contentions").)

3. Defendants incorporate by reference their arguments regarding anticipation from their dispositive motion and expert reports.

Defendants motion for summary judgment addresses anticipation in significant detail and is incorporated by reference. (Dkt. 134, pp. 4-9.) The Defendants' element-by-element claim comparison in Defs.' Contentions show how Xiao or Xiao and Hasan render all the asserted claims invalid. (Ex. 6.) In addition, Dr. Medlin described in his expert report how the asserted claims are anticipated or made obvious by Xiao, Fripp '035, Fripp '118, or combinations thereof. (Ex. 4, Jul. 27, 2021 Medlin rep. at pp. 48-196.)

B. Plaintiff Failed to Prove Infringement.

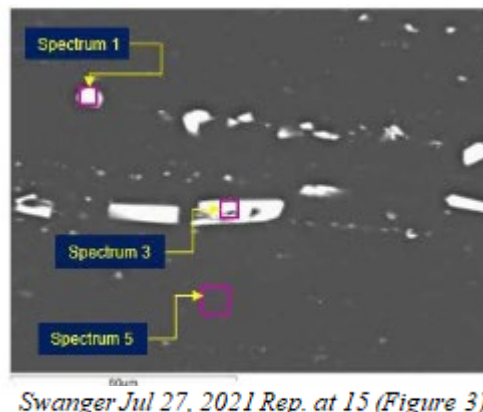
1. Plaintiff has not met its burden to prove that every element of any '653 Patent Claims are present in the Defendants' Products.

a. Plaintiff abandoned certain claims.

Plaintiff abandoned claims 8, 11, 24, 28, 32, 36, 40, 44, 48, 51, 71, 72, and 75 from the '653 Patent (Dkt. 134, UMF 18).

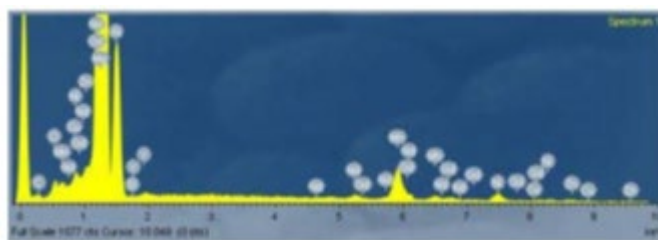
b. *The absence of intermetallic phase indicates that none of the '653 claims are infringed.*

All '653 Patent claims require an “additive material constituting about 0.05 wt. %-45 wt. % of said mixture” that forms a “galvanically-active intermetallic.” (Compare '653 claims 1, 12, 25, 29, 33, 37, 41, 45, 49 and 71.) When magnesium (Mg) and nickel (Ni) or copper (Cu) form an intermetallic phase, those elements combine in a specific ratio required by chemistry. Plaintiff's expert testified that “[i]n each of the seven Ecometal magnesium composite grades evaluated, the concentration of copper and/or nickel is low enough and processed in such a manner that the only intermetallic phases that will form are either Mg_2Cu or Mg_2Ni .” (Ex. 2, Swanger July 27, 2021 rep. at 19.) The



Swanger Jul 27, 2021 Rep. at 15 (Figure 3)

Figure 1



Swanger Jul 27, 2021 Rep. at 15 (Spectrum 1)

Figure 2

intermetallic phase formed would have two parts Mg and one part Ni or Cu; thus, the intermetallics will all be about 1/3 Ni or Cu and 2/3 Mg. Dr. Swanger's results prove that the required ratio of

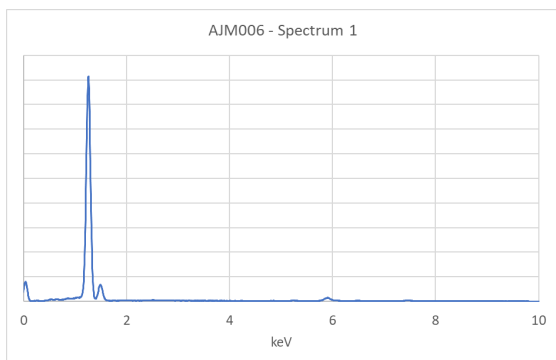


Figure 3

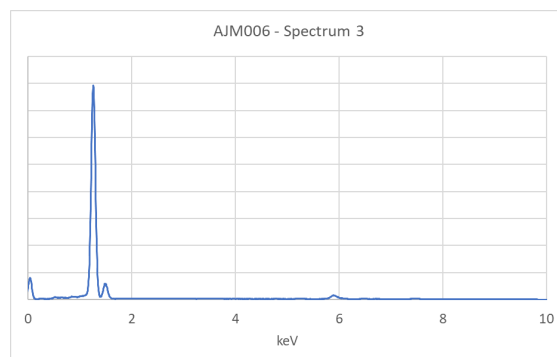


Figure 4

elements *does not exist* in what he posited as the alleged intermetallic components of Defendants' alloys.

Dr. Swanger performed energy dispersive X-ray spectroscopy or "EDS" on alleged precipitates in a sample of AJM006. (Fig. 1 taken from Ex. 2,

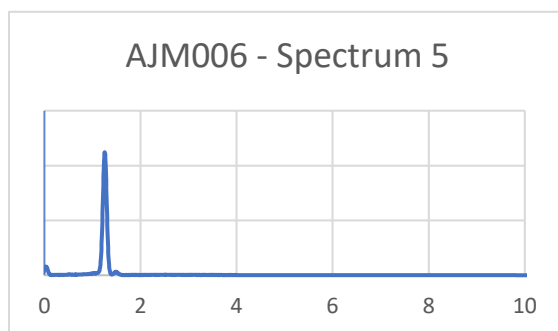


Figure 5

Swanger July 27, 2021 rep. at p. 15, Fig. 3.) The EDS spectrograph is used to determine the composition of the various elements present in the material (e.g., the presence and composition of Mg, Ni, and Manganese (Mn)). Scanning Electron Microscopy ("SEM") images identified those supposed intermetallic particles. Then EDS was performed on those particles to determine the elemental composition of the particle. The SEM images of the regions being examined are shown adjacent to the EDS spectrums in Dr. Swanger's report and are reproduced herein. (*Id.* at 14.)

However, the low-resolution, mis-scaled images produced by Dr. Swanger do not tell an accurate story. See Fig. 2 above. The numerical data from Dr. Swanger for AJM006 – Spectrum 1 were used to generate full-scale, high resolution spectral images. See Figs 3 – 5 above. What is seen is that the Mg peak is overwhelmingly large compared to all the other elemental peaks. The Mg to Mn peak height The Mg peak relative to Ni or Cu, and the Mg-Ni peaks are not in the 2:1 ratio as required. Rather, measuring the peaks indicates that if Ni is present, it is less than 2% of the referenced regions of the alloy, not the required 33%.

Spectrum 3 is also reproduced here. The area under each peak is proportional to the concentration of that element, however the height of the peaks can be used as a close approximation to the area. The larger the peak, the higher the concentration of that element is present. Conversely, an element with low concentration would present as a small peak, and an element not present would show no response at all. Spectrum 5 is an example, per Dr. Swanger,

that would have no additive material present since it is not a region he identified as an intermetallic particle. Given that Dr. Swanger asserts that Mg_2Cu or Mg_2Ni must form, the relative peak areas in his EDS spectra prove that those intermetallic phases are not formed. The large peaks to the left of each spectrum demonstrate that Mg is by far the largest component, which is to be expected. The next largest peak at 6 keV is Manganese (Mn). The extremely small peak to the right of the Mn peak at approximately 7.5 on the x-axis is Nickel (Ni). This Ni peak is not in the 2:1 proportion that Swanger requires. Swanger's EDS spectra prove that the intermetallic phases are *not* present in the 2:1 ratio required for Mg_2Ni . There are no

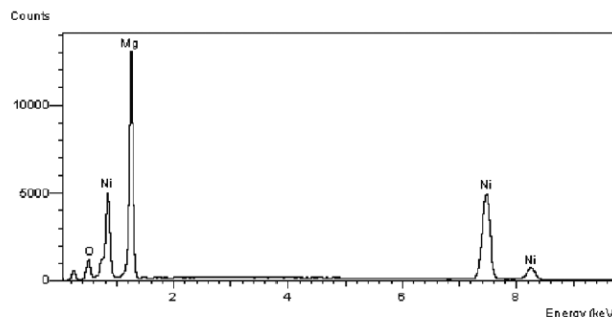


Figure 3. An EDS scan from the Iturbe-Garcia article showing the chemistry of an Mg_2Ni intermetallic phase. Note the height of the Mg peak to the Ni peaks.

Figure 6
 Mg_2Ni intermetallic phase present in any AJM product according to testing performed for Swanger. Without the presence of Mg_2Ni , there is no infringement.

Contrast Dr. Swanger's results to the EDS spectra of a known Mg_2Ni interphase from Dr. Medlin's report. (Ex. 2, Aug. 27, 2021 Medlin rep. at p. 5.) That spectrum is of a known Mg_2Ni material, the ratio of the areas under the Mg and Ni peaks is the expected 2:1 ratio. That figure shows the EDS for an intermetallic phase particle. Dr. Swanger's results do not. The intermetallic particles are not present in the Defendants' products.

All independent '653 claims asserted (1, 12, 25, 29, 33, 37, 41, 45 and 49) and claims depending therefrom contain the limitation of "a galvanically-active intermetallic particle." Plaintiff has not identified any evidence to prove that any of Defendants' products contain any "galvanically-active intermetallic particle." Dr. Swanger discusses how the '010, '653 and '740 claims include such an intermetallic particle, but Dr. Swanger never provides any evidence to show that Defendants' products contain such a particle. Instead, Dr. Swanger makes a conclusory

statement copying verbatim the language from the claim. As discussed above, the SEM results cannot establish the existence of a galvanically-active intermetallic particle,” which Dr. Swanger says must be “either Mg_2Cu or Mg_2Ni .” (Ex. 2, Swanger July 27, 2021 rep. at 19.) The spectra submitted do not show nickel rich or copper rich particles, but instead show particles having only tiny fractions of those elements.

A further problem is presented by the fact that the evidence submitted with Plaintiff’s Motion only includes spectra for three of the seven accused products (AJM 6, 16, and 23) (Ex. 3, Swanger July 27, 2021 rep. at pp. 15, 16.) Regarding the remaining four accused products, Swanger indicated that “similar results” were “provided in materials produced...in litigation.” (*Id.* at p. 14.) In a summary judgment motion, a party is required to produce admissible evidence and to particularly point out among the evidence what it is relying on; simply noting that the evidence was produced is insufficient. FRCP 56(c)(1)(A) requires the moving party to cite to “particular parts of materials in the record.” Courts generally require pinpoint citations to admissible evidence. See, e.g., *Kornely v. Carson’s Ribs of Deerfield, Inc.*, 2000 U.S. Dist. Lexis 17722, *5 (N.D. Ill. Dec. 4, 2000) (court not required to “engage in a treasure hunt to uncover the evidence a party relies on”). Therefore, at most, Plaintiff only presented regarding AJM 6, 16 and 23.

c. No proof of unalloyed additive material required by Claim 12.

Claim 12 requires that “at least a portion of said additive material remaining unalloyed additive material, ...” However, the Plaintiff has not provided any evidence to show that there are any areas in Defendants’ products containing “unalloyed” or pure regions of additive materials. In fact, Dr. Swanger never mentions the term “unalloyed” additive materials in reference to Defendants’ products. Claims 13-15, 18-20 and 23 depend on claim 12 and Plaintiff has never mentioned or let alone proven that Defendants’ products contain this claim element. Defendants’ products have not been proven to infringe these claims.

2. The Plaintiff has not met its burden to prove that every element of any ‘740 Patent Claims are present in the Defendants’ Products

a. Plaintiff abandoned certain claims.

Plaintiff’s Counsel abandoned assertion of ‘740 claim 18. (Dkt. 134, UMF 18.)

b. Defendants do not market frac balls, plugs, or other tool components, so there cannot be literal infringement.

Independent Claim 2 and its asserted dependent claims (dependent claims 3-11, 13, 16-17) require that the composite “at least partially forms a ball, a frac ball, a tube, a plug or other tool component.” Dr. Swanger shows a photograph of a frac plug and frac ball. (Ex. 2, Swanger Jul 27, 2021 Rep. at p. 10.) Dr. Swanger also shows samples of Defendants’ products. (*Id.* at p.14.) Defendants’ products are not balls, frac balls, a tube, a plug or other tool components as required by claim 2 of ‘740. In fact, Plaintiff has never even raised the issue that Defendants make, use, sell or import a ball, a frac ball, a tube, a plug or other tool component. Therefore, Plaintiff has not proven this required element of claim 2 of ‘740. Claims 3-11, 13, and 16-17 depend on claim 2, so Plaintiff has not proven that any of Defendants’ products contain this limitation.

No evidence of that was provided. Rather, Plaintiff merely alleged that Defendants have “caused to be imported” the accused alloys. (Dkt. 135, Fact 12.) Importing accused alloys is not sufficient to directly infringe Claim 2 of the ‘740 and claims depending thereon.

c. There is no evidence that Defendants’ products contain in situ precipitates no more than 50 microns.

Claim 19 of the ‘740 Patent and claims depending therefrom (20-47, 49-69, and 76-93) includes the limitation that “a plurality of particles of said in situ precipitate having a size of no more than 50 μm .” Plaintiff’s Motion never mentions this limitation. Therefore, Plaintiff’s Motion should be denied on these claims based on that failure alone.

d. Absence of in situ precipitate including said additive material.

All ‘740 claims require the limitation that “said dissolvable magnesium cast composite includes in situ precipitate, said in situ precipitate includes said additive material.” Plaintiff has never proven that Defendants’ products contain this limitation. See Prop. B(1)(b), *supra*. Plaintiff never mentions this limitation in their memorandum. Dr. Swanger’s EDS experiment purportedly shows *in situ* precipitate with no discernable additive materials. Therefore, Defendants’ materials do not contain every element of this claim and do not infringe these claims. This failure infects all of Plaintiff’s allegations that Defendants’ products infringe the ‘740 Patent’s claims.

C. Plaintiff cannot escape its inequitable conduct by hypertechnical and inaccurate arguments about who had knowledge of relevant prior art.

Plaintiff argues that the inventors and their patent counsel lacked knowledge of Xiao or of the status of their Chinese patent application, so they cannot be guilty of inequitable conduct. [Dkt. 135 at pp.14-17.]

1. Scope of the duty of disclosure and candor

First, Plaintiff ignores the scope of the duty of disclosure and candor. It extends to “every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, [or] the applicant...” 37 C.F.R. § 1.56(c). This definition clearly includes litigation counsel because 1) they are licensed patent attorneys with a duty to the USPTO, 2) they are “associated with the...applicant” as counsel in this infringement case and 3) they were actively involved with transmitting information to Turung during prosecution of the Plaintiff’s Patents. (Dkt. 134, Undisp. Mat. Facts 13 - 16.)

The MPEP applies the duty of disclosure and candor to information cited in foreign applications, which duty is “especially strong where it has been used in rejecting the same or similar claims in the foreign application or where it has been identified in some manner as particularly relevant.” MPEP § 2001.06(a) (citing *Genveto Jewelry Co. v. Lambert Bros., Inc.*,

542 F. Supp. 933 (S.D.N.Y. 1982)). “Conduct before the PTO that may render a patent unenforceable is broader ‘than common law fraud.’” *J.P. Stevens & Co. v. Lex Tex Ltd., Inc.*, 747 F.2d 1553, 1559 (Fed. Cir. 1984).

Foreign patent attorneys representing applicants...must be held to the same standards of conduct which apply to their American counterparts; **a double standard of accountability would allow foreign attorneys and their clients to escape responsibility for fraud or inequitable conduct merely by withholding from the local correspondent information unfavorable to patentability and claiming ignorance of United States disclosure requirements.**

Gemveto, 542 F. Supp. at 944 (emphasis added).

Plaintiff’s foreign counsel foreign and United States prosecution counsel Turung both knew that Plaintiff’s patent claims were rejected by the CPO as being unpatentable over Xiao. (Dkt. 134, at UMF 9.) Foreign counsel and Turung knew that Plaintiff had to narrow Plaintiff’s patent claims to overcome Xiao. (Id. at UMF 10.) Foreign counsel conceded to the CPO that Xiao taught all of the following aspects of Plaintiff’s patents: the chemical composition, the physical structure, and the dissolution rate. These points were not even argued by Chinese patent counsel. (Id. at Ex. 8, Plaintiff’s Chinese office action response.) Plaintiff conceded that Xiao taught all the relevant aspects of its composition, structure and dissolution rate, and those concessions make Xiao exceptionally relevant to Plaintiff’s United States patent claims. Yet, Plaintiff did not disclose ANY of the foregoing information to the USPTO as it was required to do by USPTO rules.

2. The “Applicant” is Plaintiff, not any one person.

Second, Plaintiff ignores that the “applicant” for the patents was the corporation, Terves, Inc., not the individual inventors. (Dkt. 134, Ex’s 1 – 4 (listing the applicant as Terves, Inc.)). It is the knowledge of the applicant, its prosecution counsel, litigation counsel, foreign counsel, and “every other person who is substantively involved in the preparation of the application and who is associated with the ... applicant” that matters, not the knowledge of one person. 37 C.F.R. § 1.56(c). Plaintiff seeks a “double standard” of accountability regarding its conduct in foreign

patent applications. *Gemveto*, 542 F. Supp. at 944 (“a double standard of accountability would allow foreign attorneys and their clients to escape responsibility for fraud or inequitable conduct merely by withholding from the local correspondent information unfavorable to patentability and claiming ignorance”). Knowledge of counsel is imputed to the client. *Daniel v. Cantrell*, 375 F.3d 377, 385 (6th Cir. 2004) (“constructive notice thereof to the client is conclusive, and cannot be rebutted by showing that the attorney did not in fact impart the information so acquired”).

3. Plaintiff ignored its failure to disclose litigation materials.

Third, Plaintiff’s Motion completely ignores issues related to disclosure of litigation materials. Defendants established that Turung and litigation counsel possessed English translations of Xiao and litigation materials during the pendency of the ‘740 Patent. (Dkt. 134, UMF 14 (regarding an English translation of Xiao) 15 (regarding Defendant’s invalidity contentions).) Plaintiff chose to submit some references provided by Defendants during litigation (*Id.* at UMF 17.) However, Plaintiff failed to disclose the invalidity contentions or the English translation of Xiao it received during litigation.

The duty of candor extends to disclosure of information obtained during the course of litigation and the mere existence of the litigation. The “existence of such litigation and any other material information arising therefrom must be brought to the attention of the examiner or other appropriate official” at the USPTO. MPEP § 2001.06(c) (emphasis added). Information to be disclosed includes pleadings, admissions, discovery, depositions and other documents. *Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253, 1258-59 (Fed. Cir. 1997) (holding a patent unenforceable due to inequitable conduct based on failure to disclose ongoing litigation).

4. Plaintiff possessed material information from the CPO prosecution and this litigation that it failed to disclose.

The record is undisputed that the Plaintiff knew that its claims were rejected in China based on Xiao. Plaintiff conceded to the CPO that Xiao taught the composition, structure, and dissolution

rate of its claims. Plaintiff only secured claims in China by arguing that its products were manufactured at a specific temperature range. Thus, Plaintiff knew that it had conceded the non-patentability of its composition of matter claims, but it failed to ever advise the USPTO about those facts. Plaintiff's conduct is analogous to a litigant losing a case, then failing to disclose that loss – which comprises adverse authority directly on point in the controlling jurisdiction – to a subsequent court. Such conduct is improper both in litigation and in prosecuting patent applications. Corporate knowledge of all of the foregoing facts has been conclusively established. (Dkt. 134, UMFs 9, 10.) What motive other than intent to deceptively secure patent protection to which Plaintiff was not entitled can be more compelling?

As if that were not enough, Plaintiff utterly failed to disclose anything about this litigation or the information it obtained during the litigation to the USPTO, though Plaintiff did submit some less relevant references it obtained through the litigation. (Dkt. 134, UMF 17.) The USPTO regulations state that Plaintiff MUST disclose the existence of the litigation and materials from it. MPEP § 2001.06(c). Again, what motive other than an intent to deceptively secure patent protection to which Plaintiff was not entitled can be more compelling regarding failure to disclose information that relevant regulations state MUST be disclosed?

5. The information Plaintiff failed to disclose is material.

The rejection of all challenged '653 Patent claims by the USPTO citing Xiao in the currently pending ex parte reexamination proceeding removes any doubt about whether Xiao is “material.” (Ex. 1, Nov. 19, 2021 office action in ex parte reexam rejecting all claims in view of Xiao). Xiao was and remains HIGHLY material. Plaintiff knew that because it conceded in its Chinese patent application that Xiao taught all the limitations of the claims that were then pending including the chemical composition, structure, and dissolution rate. Plaintiff only received narrow process claims limited by the temperatures at which the products were manufactured. Plaintiff has

dropped all of its process claims because it has no evidence related to how Defendants' products are produced. All that a party would have to do to avoid Plaintiff's Chinese patent claims is to operate in a temperature range above the limitation added to the claims when Plaintiff amended its Chinese patent claims to get around the Xiao rejection.

Further, cases cited by Plaintiff support the materiality of the Chinese office action rejecting Plaintiff's claims. *Larson Mfg. Co. of S.D. v. Aluminart Prods.*, 559 F.3d 1317, 1338 (Fed. Cir. 2009) ("Because the...Office Actions contained another examiner's adverse decisions about substantially similar claims...the district court correctly found the withheld Office Actions material") (cited by Plaintiff in its Mot. for Summ. Judgment at p.14). Accord *Regeneron Pharms., Inc. v. Merus B.V.*, 144 F. Supp. 3d 530, 560 (S.D.N.Y. 2015) (noting the particular importance of "treatment of prior art in connection with other related applications" and reciting authority that an "adverse decision by another examiner...meets the materiality standard").

6. Intent to deceive is the single-most reasonable inference to be drawn from the evidence.

Two different times Plaintiff possessed information highly relevant to patentability and elected to conceal, rather than to disclose it. Plaintiff will argue that it lacked the relevant intent, but Defendants ask the Court to carefully consider whether intentional, calculated decision making or incompetence is more likely to explain the decisions made in prosecuting the Plaintiff's Patent Family. Defendants submit that an "[i]ntent to deceive the PTO" is "the single most reasonable inference able to be drawn from the evidence." *Everlight Elecs. Co. v. Nichia Corp.*, 143 F. Supp. 3d 644, 656 (E.D. Mich. 2015).

First, during prosecution of a Chinese Application corresponding to '010 Patent, the claims were rejected by the CPO citing Xiao. (Dkt. 134, UMF 9.) Rather than argue with the CPO that the Xiao reference was distinguishable, Plaintiff chose to amend its claims to include a specific

processing option not taught by Xiao.¹⁰ (Dkt. 134, UMF 10.) Plaintiff chose to conceal the whole series of events at the CPO from the USPTO. (Dkt. 134, UMF 11.) MPEP § 2001.06(a) provides that the duty of disclosure and candor is “especially strong where it has been used in rejecting the same or similar claims in the foreign application or where it has been identified in some manner as particularly relevant.” Turung knew about this “especially strong” duty but did not tell the USPTO anything about Xiao’s provenance. (Dkt. 134, UMFs 6 and 11.) What Plaintiff did here is analogous to knowing about a controlling and adverse case directly on point and putting it in a string citation with a bunch of irrelevant (or marginally relevant) cases to hide its importance, or not disclosing it at all.

Second, after suing Defendants, Plaintiff received a number of references and a road map to applying them to invalidate the claims of the ‘740 Patent. (Dkt. 134, UMFs 14 – 17.) Rather than advising the USPTO about the litigation and giving Defendants’ roadmap to the USPTO, Plaintiff chose to disclose only selected portions of the information without the road map provided by Defendants’ infringement contentions. (*Id.*) Both litigation counsel and prosecution counsel were involved in deciding what to disclose and knew their decisions would receive close scrutiny during litigation. The “existence of such litigation and any other material information arising therefrom must be brought to the attention of the” USPTO. MPEP § 2001.06(c) (emphasis added). Information to be disclosed includes pleadings, admissions, discovery, depositions and other documents and testimony. *Critikon, Inc. v. Becton Dickinson Vascular Access, Inc.*, 120 F.3d 1253,

¹⁰ The processing distinction used by Plaintiff to distinguish the *process* claims of the ‘010 Patent before the CPO would not apply to the composition claims in the ‘653 and ‘740 Patents. Composition claims are generally independent from the process used to create the composition. Plaintiff has dropped any claims that require a specific method of manufacturing the accused alloys because it has not named the manufacturer and cannot say what method was used. See, e.g., (Dkt. 134, UMF 19) (dropping the method claims of the ‘010 Patent.)

1258-59 (Fed. Cir. 1997) (holding a patent unenforceable due to the inequitable conduct for failure to disclose a relevant reference and ongoing litigation).

The foregoing scenario played out over more than two years during which Plaintiff was represented by three different USPTO-licensed attorneys. This was not an isolated failure to disclose a particular reference or to follow USPTO rules. The “intent to deceive the PTO must be ‘the single most reasonable inference able to be drawn from the evidence.’” *Everlight Elecs. Co.* 143 F. Supp. 3d at 656. Plaintiff achieved a semblance of compliance with disclosure, potentially even over disclosure, while not giving the USPTO required references, which were the most likely to result in rejection of claims, leaves Defendants with the firm conclusion that an intent to deceive is the most logical way to understand these events.

D. Summary Judgment is Improper Regarding Defendants’ Affirmative Defenses

Court have held that statements by an applicant in corresponding foreign applications can comprise de facto prosecution history estoppel or amount to a waiver of certain claim coverage. *Kyowa Hakka Bio., Co. Ltd. v. Ajinomoto Co., Inc.*, 2020 U.S. Dist. Lexis 108235 (D. Del. June 19, 2020 (the “Federal Circuit has routinely approved reliance upon statements in foreign prosecutions where they constituted blatant admissions directed at the relevant art.”))

Plaintiff made remarks and amendments before the CPO that should estop it from taking positions in this litigation that differ. Notably, Plaintiff conceded that Xiao taught the same compositions, structures, and dissolution rates as Plaintiff claims herein. (Dkt. 134, CPO office action response attached as Ex. 8.) Further, Plaintiff amended its claims to rely on a method of manufacturing to secure patent protection. (*Id.*) That method of manufacturing cannot be asserted against Defendants who do not manufacture the products, even if they were manufactured using the process claimed by Plaintiff in the CPO.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that on December 20, 2021, I electronically transmitted the foregoing document to the Clerk of the Court using the ECF system for filing and transmittal of a Notice of Electronic Filing to the following ECF registrants:

David B. Cupar
Matthew J. Cavanagh
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/s/ Edward L. White
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CERTIFICATE OF COMPLIANCE

1. This case has been assigned to the standard track. *See* ECF No. 20.
2. This document complies with the page limitations of LR 7.1(f) as this motion does not exceed 20 pages in length.

/s/ Edward L. White
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