NOT FOR PUBLICATION

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

PURDUE PHARMACEUTICAL PRODUCTS, L.P., et al.

Plaintiffs,

v.

ACTAVIS ELIZABETH, LLC, et al.

Defendants

PURDUE PHARMACEUTICAL PRODUCTS, L.P., et al.

Plaintiff,

v.

TWI PHARMACEUTICALS, INC.

Defendants.

Civil Action No. 12-5311 (JLL)
[Consolidated with Civil Action No. 13-5003]

OPINION

LINARES, District Judge.

This patent infringement action stems from various generic drug manufacturers' attempts to obtain Food and Drug Administration ("FDA") approval to market a generic version of Plaintiffs Purdue Pharmaceutical Products, L.P. ("Purdue Pharmaceutical"), Purdue Pharma, L.P. ("Purdue Pharma"), and Transcept Pharmaceuticals, Inc. ("Transcept") (collectively "Plaintiffs")'s Intermezzo®, a drug used to treat middle-of-the-night ("MOTN") insomnia.

Before the Court is an application for claim construction by Plaintiffs and Defendants Actavis Elizabeth, LLC; Novel Laboratories, Inc.; Par Pharmaceutical, Inc.; Dr. Reddy's Laboratories, Inc.; Dr. Reddy's Laboratories, Ltd; and TWi Pharmaceuticals, Inc. (collectively, "Defendants"). Specifically, the parties seek the Court's interpretation of certain language contained in the claims of United States Patent Nos. 7,682,628 (the "'628 Patent"), 8,242,131 (the "'131 Patent"), and 8,252,809 (the "'809 Patent").

The Court held a *Markman* hearing on May 8, 2014, and has considered the parties' written and oral arguments. The Court sets forth herein its construction of the disputed claim terms.

I. BACKGROUND

Purdue Pharmaceutical is the current holder of New Drug Application No. 022328, for sublingual tablets containing 1.75 mg and 3.5 mg of zolpidem tartrate, which the FDA approved on November 23, 2011 to treat MOTN insomnia. (CM/ECF No. 36 at ¶ 28.) Purdue Pharma markets the approved drug under the tradename Intermezzo®. (*Id.*)

While other approved sleep drugs, such as Ambien®, help patients with difficulty falling asleep, Intermezzo® induces sleep in the middle of the night in patients suffering from MOTN insomnia.[1] (*See, e.g.*, CM/ECF No. 95 at 7.) The active ingredient in Intermezzo® is zolpidem—the same active ingredient in Ambien®. (*See, e.g., id.*) Nevertheless, Intermezzo® uses half the dose of zolpidem than that used in Ambien®. (*Id.*) Additionally, the delivery method of zolpidem in Intermezzo® is different. Whereas Ambien® is swallowed as a tablet, Intermezzo® delivers zolpidem transmucosally (i.e., sublingually). (CM/ECF Nos. 93 at 8; 95 at

[1] The parties agree that MOTN insomnia is a "condition wherein a subject, after falling asleep, awakens and has difficulty returning to sleep." (CM/ECF No. 92 at 2.)

7.) This allows for the drug to work more rapidly than Ambien® without causing the patient to experience grogginess in the morning. (CM/ECF Nos. 93 at 8-9; 95 at 7.)

There are four patents covering Intermezzo®: (1) the '628 Patent, entitled "Compositions for delivering hypnotic agents across the oral mucosa and methods of use thereof;" (2) the '131 Patent, entitled "Methods of treating middle-of-the-night insomnia;" (3) the '809 Patent, entitled "Compositions for treating insomnia;" and (4) United States Patent No. 7,658,945 (the "'945 Patent") which, like the '628 Patent, is entitled "Compositions for delivering hypnotic agents across the oral mucosa and methods of use thereof." (CM/ECF No. 152 at 5.)

Plaintiffs allege that in filing Abbreviated New Drug Applications to market generic versions of Intermezzo®, Defendants have infringed the '628, '131, and '809 Patents. (*See generally* CM/ECF No. 36.)

II. LEGAL STANDARD

"It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). "When the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008).

"[T]he words of a claim are generally given their ordinary and customary meaning" which is "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips*, 415 F.3d at 1312-13 (internal quotations omitted). A court "must look at the ordinary meaning in the context of the written description and the prosecution history." *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005). Courts should turn to "those sources available to the public that show what a person of skill in

the art would have understood disputed claim language to mean." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004).

To this end, the court should first examine the intrinsic record—the patent itself, including the claims, the specification and, if in evidence, the prosecution history. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). The specification "acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." *Id.* Indeed, the Federal Circuit has explained that the specification is "usually . . . dispositive . . . [and] the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315 (quoting *Vitronics*, 90 F.3d at 1582). It is "entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of the claims." *Id.* at 1317. The specification is also an important guide in claims construction as it may contain "an intentional disclaimer, or disavowal, of claim scope by the inventor." *Id.* at 1316.

Additionally, the court should consult the patent's prosecution history as it "provides evidence of how the PTO and the inventor understood the patent." *Id.* at 1317. Moreover, the prosecution history "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.* Courts should, nevertheless, be circumspect in reviewing a prosecution history as it represents "an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation." *Id.*

A district court may also examine extrinsic evidence – "all evidence external to the patent and prosecution history." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir.

1995). Such evidence consists of expert statements, dictionaries, and treatises. *Id.* In particular, a court may find reference to technical dictionaries useful "in determining the meaning of particular terminology." *See Phillips*, 415 F.3d at 1318. However, extrinsic evidence is generally thought to be less reliable than the patent and prosecution history, *id.* at 1318-19; in essence, extrinsic evidence is "less significant than the intrinsic record in determining the legally operative meaning of claim language," *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004) (quotation omitted).

III. LEGAL DISCUSSION

The parties seek construction of the following terms: (1) "without residual sedative effects," contained in Claims 1 and 12 of the '131 Patent; (2) "A solid unit dosage composition for the treatment of MOTN insomnia, said composition comprising," which is the preamble to Claims 1 and 12 of the '809 Patent; (3) "effective amount of zolpidem," contained in Claims 1 and 12 of the '809 Patent; (4) "buffer," contained in Claim 1 of the '628 Patent; (5) "buffering agent," contained in Claim 12 of the '809 Patent; and (6) "binary buffer system," contained in Claims 5, 6, 22, and 23 of the '809 Patent.[2] The Court will now proceed to address the proper construction of these disputed terms.

A. "Without residual sedative effects"

"Without residual sedative effects" appears in Claims 1 and 12 of the '131 Patent. These claims state the following:

> Claim 1: A method of treating middle-of-the night insomnia in a non-elderly patient without prophylactically

[2] At oral argument, the Court instructed the parties to confer and attempt to agree upon a construction for "binary buffer system" and "buffering agent." On May 22, 2014, Plaintiffs filed a letter on behalf of all parties making the Court aware that the parties were unable to agree on how these terms should be construed. The parties did, however, exchange "compromise proposed constructions," which have made several of the arguments raised in the briefs and at oral argument moot. (*See* CM/ECF No. 178.) For purposes of construing "binary buffer system" and "buffering agent," the Court has considered the propriety of adopting each party's respective "compromise proposed construction."

> administering zolpidem, comprising: dosing the patient with a pharmaceutical composition comprising about 0.5 to about 4.75 mg of zolpidem hemitartrate or a molar equivalent amount of a pharmaceutically acceptable form of zolpidem, wherein the pharmaceutical composition is substantially free of other hypnotic agents, wherein the patient awakens from sleep and desires to resume sleep for less than 5 hours, wherein the step of dosing the pharmaceutical composition is performed after the patient awakens from sleep, and wherein the pharmaceutical composition permits the patient to awaken at a time about four hours after dosing without residual sedative effects.
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> Claim 12: A method of treating middle-of-the-night insomnia in an elderly patient without prophylactically administering zolpidem, comprising dosing the patient with a pharmaceutical composition comprising about 1.5 to 2.5 mg of zolpidem hemitartrate or a molar equivalent amount of a pharmaceutically acceptable form of zolpidem, wherein the pharmaceutical composition is substantially free of other hypnotic agents, wherein the patient awakens from sleep, and desires to resume sleep for less than 5 hours, wherein the step of dosing the pharmaceutical composition is performed after the patient awakens from sleep, and wherein the pharmaceutical composition permits the patient to awaken at a time about four hours after dosing without residual sedative effects.

Plaintiffs maintain that this Court should construe "without residual sedative effects" to mean "with no or minimal subjective feelings of sedation, as evaluated by: (a) testing acceptably in at least one test exploring psychomotor performance, attention, information processing, and memory used by those of skill in the art; and/or (b) demonstrating plasma levels of zolpidem, at an appropriate time point, below about 29 ng/ml." Defendants, on the other hand, have not proposed a construction for "without residual sedative effects." In fact, they concede that "the definition for the claim term 'without residual sedative effects' appears in the '131 Patent specification." (CM/ECF No. 103 at 13.) Nevertheless, Defendants argue that the term is indefinite.

At the outset, the Court notes that the first portion of Plaintiffs' proposed construction (i.e., "with no or minimal subjective feelings of sedation") largely mirrors the specification's definition of "residual sedative effects," which is "a patient's subjective feeling of sedation upon awakening." ('131 Patent at 6:41-42.) The specification makes clear that "the term ['residual sedative effects'] is meant to refer to a patient population as found in, for example, a clinical trial, rather than a single patient example." ('131 Patent at 6:43-45.)

The remainder of Plaintiffs' proposed construction is also consistent with the specification's description of how a person of ordinary skill in the art would evaluate a subjective feeling of sedation. Specifically, the specification provides that "[r]esidual sedative effects . . . can be evaluated using one or more of a number of tests exploring psychomotor performance, attention, information processing, and memory used by those of skill in the art . . . [and that] an amount [of zolpidem] that substantially avoids or does not produce residual sedative effects is an amount that allows a subject, upon awakening, to test acceptably in at least one of . . . [these] tests. . ." ('131 Patent at 6:45-67—7:1-2.) Consistent with Plaintiffs' proposed construction, the specification also provides an alternative means of measuring residual sedative effects by reference to a subject's plasma levels of zolpidem. The specification states that "residual sedative effects will be essentially extinguished when a subject's plasma levels of zolpidem fall below about 20 ng/ml . . . in a patient population." ('131 Patent at 7:5-12.)

With respect to Defendants' indefiniteness argument, the U.S. Supreme Court has held that courts should hold a claim to be indefinite and, therefore, invalid, "if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments*, No. 13-369, 2014 U.S. LEXIS 3818, at *6 (June 2, 2014). Defendants

maintain that "without residual sedative effects" is indefinite because, while the specification sets forth a number of methods for determining whether someone taking zolpidem awakens without residual sedative effects, it fails to define which of these methods governs. Additionally, Defendants contend that Plaintiffs' proposed construction "conflate[s] the subjective and objective methods" for measuring residual sedative effects. (CM/ECF No. 103 at 17.) To illustrate its point, Defendants argue that "it is conceivable that a person, after ingesting zolpidem and sleeping for four hours, wakes up feeling fine, i.e., 'no or minimal subjective feeling of sedation,' but obtains plasma levels of zolpidem above 20 ng/ml." (CM/ECF No. 93 at 25.) Defendants point out that in such an instance, it would be unclear whether a person's ingestion of zolpidem would infringe the '131 Patent because the person would meet the subjective assessment but not the objective one. (*Id.*)

Defendants largely rely on *Honeywell Int'l, Inc. v. ITC*, 341 F.3d 1332 (Fed. Cir. 2003) for the proposition that "without residual sedative effects" is indefinite. (*See, e.g.*, Tr. at 20.) *Honeywell* involved a patent disclosing "a process for production of a particular multifilament polyester product called polyethylene terephthalate ("PET") yarn" used as a reinforcement for automobile tires. *Honeywell*, 341 F.3d at 1334. All claims in the patent at issue "require[d] that the yarn produced by the claimed process fall within a specified . . . [melting point elevation] at some point during the process." *Id.* at 1335. The dispute in the case "focused on the method of measuring one claimed feature—the melting point elevation ("MPE")." *Id.* Although there were four methods for preparing PET yarn that were well known to persons of ordinary skill in the art, "neither the claims, the written description [of the patent at issue], nor the prosecution history reference[d] any of the four sample preparation methods that can be used to measure the MPE." *Id.* at 1339. The court noted that depending upon which method was used, "the calculated MPE

for a given sample can vary greatly." *Id.* at 1336. Ultimately, the court held that the claims containing the disputed term "melting point elevation" were "insolubly ambiguous, and hence indefinite" because "the claims, the written description, and the prosecution history fail[ed] to give . . . any guidance as to what one of ordinary skill in the art would interpret the claim to require." *Id.* at 1340. The court emphasized that because the "preparation method [was] critical to discerning whether a PET yarn ha[d] been produced by the claimed process, knowing the proper . . . preparation method [was] necessary to practice the invention." *Id.*

Defendants argue that just as the patent at issue in *Honeywell* failed to specify which method governed the measurement of MPE, the '131 Patent fails to specify which test governs the measurement of residual sedative effects. Additionally, without citing to any expert's statement or other evidence in the record, Defendants assert that, like the methods for measuring MPE in *Honeywell*, the methods for measuring residual sedative effects in the '131 Patent produce inconsistent results. (CM/ECF No. 93 at 25.)

Defendants' arguments do not persuade the Court that it would be appropriate, at this juncture, to hold that Claims 1 and 12 of the '131 Patent are indefinite for two primary reasons. First, whereas the patent at issue in *Honeywell* did not set forth the methods for measuring MPE, the '131 Patent does set forth specific tests for measuring residual sedative effects. (*See, e.g.*, '131 Patent at 6:45-67—7:1-2.) Second, the Federal Circuit has made clear that a patent is not indefinite merely because it fails to specify which method of measurement should be used, or because different methods may produce different results. *See Takeda Pharm. Co. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1366 (Fed. Cir. 2014) (rejecting argument that patent was indefinite because it did "not specify the method of measurement that should be used to determine average particle diameter," while acknowledging that various methods used to

approximate average particle diameter "can produce different results even for the same sample."); *see also id.* at 1367 n.3 (noting that "the potential for inconsistent results even within the same method of measurement . . . surely does not render a claim indefinite."). The critical inquiry is whether the method of measurement is "outcome-determinative in the infringement analysis." *Id.* at n.4 (distinguishing *Honeywell* on the basis that in that case the method of measurement was "critical to discerning whether [an infringing yarn] has been produced by the claimed process.") (bracketed text in original).

At this time, it would be premature for this Court to hold that the method of measuring residual sedative effects would be outcome-determinative. This is particularly so because Defendants have not proffered any expert statement, or pointed to any evidence in the record to show that the method of measuring residual sedative effects is critical to the infringement analysis. *See, e.g., Cacace v. Meyer Mktg. (Macau Commercial Offshor) Co., Ltd.*, 812 F. Supp. 2d 547, 561 (S.D.N.Y. 2011) (observing that "mere attorney argument is insufficient to establish invalidity based on indefiniteness.").

As Plaintiffs' proposed construction is consistent with: (1) the '131 Patent specification's definition for "without residual sedative effects" and (2) the method for measuring "without residual sedative effects" set forth in the '131 Patent specification, this Court will adopt Plaintiff's proposed construction for "without residual sedative effects." *See, e.g., Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009) ("When a patentee explicitly defines a claim term in the patent specification, the patentee's definition controls."). Further, the Court declines to resolve Defendants' indefiniteness argument at this time. *See, e.g., Waddington N. Am., Inc. v. Sabert Corp.*, No. 09-4883, 2010 WL 436317, at *2-3 (D.N.J. Oct. 27, 2010) (declining to resolve indefiniteness argument at the claims construction stage as the

issue was "more appropriately tackled at summary judgment."); *Alcon Research Ltd. v. Barr Labs, Inc.*, No. 09-0318, 2011 WL 3901878, at *16 (D. Del. Sept. 6, 2011) ("We find that the indefiniteness issue is best decided at trial and defer consideration on it until that time."). Defendants may, nevertheless, renew their indefiniteness argument at a later point in this litigation.

B. "effective amount of zolpidem" and Preamble – "a solid unit dosage composition for the treatment of MOTN insomnia, said composition comprising"

The terms "effective amount of zolpidem" and "a solid unit dosage composition for the treatment of MOTN insomnia, said composition comprising" appear in Claims 1 and 12 of the '809 Patent. These claims state the following:

> Claim 1: A solid unit dosage composition for the treatment of MOTN insomnia, said composition comprising an effective amount of zolpidem or a salt thereof, formulated for delivery across a subject's oral mucosa, wherein said effective amount is an amount of less than $1.30x10^{-5}$ moles of zolpidem, and is an amount sufficient to produce a plasma concentration between 25 ng/ml and about 50 ng/ml within 20 minutes of administration, when evaluated in an appropriate patient population.
>
> Claim 12: A solid unit dosage composition for the treatment of MOTN insomnia, said composition comprising an effective amount of zolpidem or a salt thereof and at least one buffering agent, formulated for delivery of zolpidem across a subject's oral mucosa, wherein said effective amount is 0.5 to 4.75 mg of zolpidem hemitartrate, and is an amount sufficient to produce a plasma concentration between 25 ng/ml and about 50 ng/ml within 20 minutes of administration, when evaluated in an appropriate patient population.

a. "effective amount of zolpidem"

Plaintiffs maintain that "effective amount of zolpidem" should be construed to mean "amount of zolpidem that is capable of achieving a therapeutic effect in a subject in need

thereof." Defendants, on the other hand, assert that "effective amount of zolpidem" is defined by Claims 1 and 12, themselves. Specifically, they argue that for Claim 1, the Court should construe "effective amount of zolpidem" as "an amount of less than $1.30x10^{-5}$ moles of zolpidem, and is an amount sufficient to produce a plasma concentration between 25 ng/ml and about 50 ng/ml within 20 minutes of administration." For Claim 12, Defendants argue that "effective amount of zolpidem" should be construed as "0.5 to 4.75 mg of zolpidem hemitartrate, and is an amount sufficient to produce plasma concentration between 25 ng/ml and about 50 ng/ml within 20 minutes of administration."

As an initial matter, there is no dispute that the specification defines "effective amount" as "the amount of zolpidem that is capable of achieving a therapeutic effect in a subject in need thereof." ('809 Patent 7:48-50.) Plaintiffs' proposed construction is identical to the language of the specification defining "effective amount." Defendants, nevertheless, suggest that the specification's definition should not control because the body of Claims 1 and 12, respectively, "explicitly defines what an effective amount of zolpidem is." (CM/ECF No. 93 at 28.) In arguing that the Court should decline to look beyond the language of Claims 1 and 12 in construing "effective amount of zolpidem," Defendants largely rely on *Renishaw PLC v. Marposs Societa' Per Azioni*, a case in which the Federal Circuit observed that "the claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." 158 F.3d 1243, 1248 (Fed. Cir. 1998). In that very same case, however, the Federal Circuit made clear that "a claim must be read in view of the specification of which it is a part." *Id.*

Indeed, it would be inappropriate for this Court to construe "effective amount of zolpidem" in Claims 1 and 12, as if these claims stood apart from the '809 Patent. *See id.*; *see also Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2001)

("In reviewing the intrinsic record to construe the claims," courts should "strive to capture the scope of the actual invention, rather than strictly limit the scope of the claims to disclosed embodiments or allow the claim language to become divorced from what the specification conveys is the invention."). The Federal Circuit has repeatedly made clear that a "patentee's lexicography must govern the claim construction analysis." *Braintree Laboratories, Inc. v. Novel Laboratories, Inc.*, No. 13-1438, 2014 WL 1584451, at *5 (Fed. Cir. Apr. 22, 2014); *see also Phillips*, 415 F.3d at 1315 (observing that "the specification is always highly relevant to the claim construction analysis [and] is [u]sually . . . dispositive [because] it is the single best guide to the meaning of a disputed term.") (internal quotation marks omitted). Here, the patentee chose to define "effective amount" in the '809 Patent. Accordingly, that definition must govern. *See Martek*, 579 F.3d at 1380.

b. Preamble – "A solid unit dosage composition for the treatment of MOTN insomnia, said composition comprising"

The parties dispute whether the preamble to Claims 1 and 12 of the '809 Patent is limiting. The Federal Circuit has observed that "a preamble limits the invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality to the claim.'" *Catalina Mktg. Int'l v. Coolsavings, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). "Whether to treat a preamble as a limitation is a determination 'resolved on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.'" *Id.* (quoting *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1996)). "[P]reambles describing the use of an invention generally do not limit the claims because the patentability of apparatus or composition claims depends on the claimed structure, not on the use or purpose of that structure." *Id.* at 809.

Here, the crux of Defendants' argument is that the preamble to Claims 1 and 12 is not limiting because it merely "describes a use for the claimed composition," namely, to treat MOTN insomnia. (*See, e.g.*, CM/ECF No. 93 at 19-20.) Additionally, Defendants argue that their position is in accord with the '809 Patent's file history. Specifically, they point out that the patent examiner stated that "the intended use recited in [C]laim 1, namely that the composition is for the treatment of MOTN insomnia is not afforded patentable weight" because "a recitation of an intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art." (*Id.* at 20, quoting August 18, 2011 Office Action at 4.)

Defendants' argument that the preamble to Claims 1 and 12 describes a mere use of the claimed composition is misguided for three primary reasons.

First, that the claimed composition is "for the treatment of MOTN insomnia" breathes life and meaning into what an "effective amount of zolpidem" is. The compositions recited in Claims 1 and 12 provide a *range*, as opposed to a fixed, amount of zolpidem.[3] A person of ordinary skill in the art must know that the claimed compositions are for treating MOTN insomnia (rather than insomnia in a patient with difficulty falling asleep)[4] to know what specific amount of zolpidem within the recited range would be "effective." Accordingly, that Claims 1

[3] The range amount of zolpidem recited in Claim 1 is one that is less than 1.30×10^{-5} moles, and produces a plasma concentration between 25 ng/ml and about 50 ng/ml within 20 minutes of administration. The range amount recited in Claim 12 is one that is 0.5 to 4.75 mg, and is sufficient to produce a plasma concentration between 25 ng/ml and about 50 ng/ml within 20 minutes of administration.

[4] Defendants do not dispute Plaintiffs' expert's assertion that zolpidem is effective for treating conditions other than MOTN insomnia. (*See* Kryger Decl. at ¶¶ 26-27 (describing effectiveness and limitations of using zolpidem to treat patients with difficulty falling asleep).) As zolpidem is effective for the treatment of conditions other than MOTN insomnia, it is apparent to the Court that a person of ordinary skill in the art must know what condition the compositions claimed in Claims 1 and 12 are designed to treat. Therefore, that the claimed compositions are "for the treatment of MOTN insomnia" is instructive for determining the amount of zolpidem that would be effective.

and 12 recite a composition "for the treatment of MOTN insomnia" does not merely describe a use of the invention, but breathes life into the meaning of "effective amount of zolpidem," and thus amounts to a limitation. *See, e.g., Vizio, Inc. v. Int'l Trade Comm'n*, 605 F.3d 1330, 1340 (Fed. Cir. 2010) (holding that the preamble phrase "apparatus for decoding" in a product claim was "properly construed as a claim limitation, and not merely a statement of purpose or intended use for the invention, because 'decoding' [was] the essence or a fundamental characteristic of the claimed invention.").

Second, the preamble to Claims 1 and 12 sets forth *how* the claimed compositions should be structured, that is, as "[a] solid unit dosage."[5] The term "solid" governs the physical state of the composition (*e.g.*, not a liquid or gel). Additionally, the specification's definition of "unit dosage" teaches a person of ordinary skill in the art that the compositions claimed in Claims 1 and 12 should be "physically discrete units suitable as unitary dosages for human subjects and other mammals, each unit containing a predetermined quantity of therapeutic agent calculated to produce the desired onset, tolerability, and therapeutic effects, in association with one or more suitable pharmaceutical excipients such as carriers." ('809 Patent 17:40-46.)

Third, the '809 Patent's prosecution history supports the proposition that the preamble to Claims 1 and 12 is limiting. While Defendants point to the patent examiner's statement of August 18, 2011 suggesting that that the phrase "for the treatment of MOTN insomnia" is not worthy of "patentable weight," they overlook the fact that the patent examiner made *later* contradictory statements. Specifically, in a March 12, 2012 office action, the patent examiner twice referred to the preamble as "*the claim limitation* that the solid unit dosage composition is

[5] It bears mentioning that, at oral argument, Defendants all but conceded that "[a] solid unit dosage composition" is limiting. Specifically, Defendants acknowledged that "solid dosage form has more of a structural flavor to it," and suggested that this portion of the preamble can be "parsed out" for claim construction purposes. (Tr. 50:8-10, 15.)

for the treatment of MOTN insomnia." (*See* '809 File History, March 12, 2012 Office Action, at TRANSIZ00060691, TRANSIZ00060694 (emphasis added).) In any event, nothing in the record suggests that Plaintiffs ever acquiesced to the patent examiner's characterization of the phrase, "for the treatment of MOTN insomnia," in the statement of August 18, 2011. Therefore, this statement has no bearing on whether the preamble to Claims 1 and 12 is limiting. *See, e.g.*, *3M Innovative Props. Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1373-74 (Fed. Cir. 2003) ("An applicant's silence in response to an examiner's characterization of a claim does not reflect on the applicant's clear and unmistakable acquiescence to that characterization if the claim is eventually allowed on grounds unrelated to the examiner's unrebutted characterization.").

For these reasons, this Court holds that the preamble to Claims 1 and 12 is limiting.

C. "Buffer"

"Buffer" appears in Claim 1 of the '628 Patent. This claim states the following:

> Claim 1: A method for treating insomnia, comprising the steps of: administering a solid pharmaceutical composition comprising zolpidem or a pharmaceutically acceptable sale thereof to a subject prone to insomnia, the pharmaceutical composition further comprising a buffer, wherein the buffer raises the pH of saliva to a pH of about 7.8 or greater, wherein zolpidem is absorbed across a permeable membrane of the subject's oral mucosa, and wherein at least 75% of the solid pharmaceutical composition dissolves within 10 minutes or less within an oral cavity following administration.

Plaintiffs argue that "buffer" should be construed in accordance with its plain and ordinary meaning. Alternatively, Plaintiffs maintain that "buffer" should be construed as "at least one substance used to maintain an approximate pH range." According to Defendants, "buffer" should be construed to mean "a buffer system of two or more buffering agents."

At the heart of the parties' dispute is whether a "buffer," as used in Claim 1 of the '628 Patent, can be limited to *only* one substance. Defendants argue that the intrinsic evidence demonstrates that Plaintiffs have disavowed any notion that "buffer," as used in Claim 1 of the '628 Patent, may consist of only one substance. Plaintiffs, on the other hand, argue that the Court should adopt their proposed construction because it is faithful to the plain and ordinary meaning of "buffer." Plaintiffs further argue that Defendants proposed construction improperly limits the full-scope of the meaning of "buffer."

The Court acknowledges that in the ordinary sense of the word, a "buffer" may consist of a single substance. *See, e.g., Oxford Dictionary of Biochemistry and Molecular Biology* (Revised Ed. 2000) (defining "buffer" as "any *substance* or mixture of substances that, when dissolved (usually in water) will maintain its solution at approximately constant pH despite small additions of acid or base.") (emphasis added). Nevertheless, the Court's task is not to determine the ordinary meaning of a "buffer." Rather, the Court must construe "buffer" in light of the '628 Patent specification. *See, e.g., United States v. Adams*, 383 U.S. 39, 49 (1966) ("[C]laims are to be construed in light of the specification and both are to be read with a view to ascertaining the invention.").

The '628 Patent specification describes how the patented invention is *different* from other inventions that use single-agent buffers and describes the limitations of single-agent buffers. While recognizing that other "transmucosal dosage forms include the use of a single buffering agent in order to change . . . pH," ('628 Patent 2:43-44), the specification describes why the use of single buffering agents has its limitations in achieving a certain pH. Specifically, the specification states:

> [S]ingle buffering agents typically react with an acid or a base to create a final pH that is dependent upon the initial pH of the saliva

> of the user. A buffering agent used to attain a final pH that is dependent upon the initial pH of the user results in great variability. The extent of ionization, and hence the extent of absorption across the mucous membranes cannot be predicted with any sort of accuracy. This may pose significant problems when calculating precise doses, minimizing variability in patient response, and proving consistency in drug loading to the regulatory authorities. In addition, a single buffering agent *is typically not capable of sustaining a given pH over a period of time for optimal absorption*.

(628 Patent 2:45-56 (emphasis added).)

The specification then goes on to describe the genius of the invention covered by the '628 Patent, that is, a "*buffer system* [that] raises the pH of saliva to a pH greater than about 7.8, thereby facilitating the substantially complete conversion of the hypnotic agent from its ionized form to its un-ionized form." ('628 Patent at 3:32- 35 (emphasis added).) Examples of such a buffer system include a "binary buffer system," a "ternary buffer system" and a "buffer system comprising two or more buffering agents." ('628 Patent at 3:56, 4:29, 43, 56.) Notably, none of the buffer system embodiments described in the '628 Patent include a *single* buffering agent.

Plaintiffs point to the following language of the '628 Patent specification to suggest that any criticism of single-agent buffers is of no moment because the specification also criticizes certain multi-component buffers:

> While others in the art have disclosed the use of more than one buffering agent, these aforementioned problems are not easily cured by the nonchalant addition of an extra buffering agent, which may be unsafe and cause irreversible damage to the mucous membranes of the oral cavity. As such, a buffering system capable of achieving and sustaining a final pH independent of the initial pH in order to increase transmucosal absorption has not heretofore been demonstrated.

('628 Patent at 2:56-64.) Plaintiffs' argument fails to persuade the Court because the logical inference from this passage is that the patented invention is different from, and superior to, single-agent buffers and certain multi-component buffers.

The Court is mindful that the Federal Circuit has held that "[m]ere criticism of a particular embodiment encompassed in the plain meaning of a claim term is not sufficient to rise to the level of clear disavowal." *Thorner v. Sony Computer Entm't Am., LLC*, 669 F.3d 1362, 1366 (Fed. Cir. 2012). The Court is also mindful that the Federal Circuit has "rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." *Phillips*, 415 F.3d at 1323; *see also Thorner*, 669 F.3d at 1366 ("It is likewise not enough [to rise to the level of a disavowal] that the only embodiments, or all of the embodiments, contain a particular limitation."). Nevertheless, "the goal of claim construction is to determine what an ordinary artisan would deem the invention claimed by the patent, taking the claims together with the rest of the specification." *Astrazeneca AB v. Mut. Pharm. Co.*, 384 F.3d 1333, 1337 (Fed. Cir. 2004).

Here, the inventor did more than merely criticize the use of single-buffering agents in the specification. Indeed, the inventor specifically stated that such single-buffering agents are "typically not capable of sustaining a given pH over a period of time for optimal absorption." ('628 Patent at 2:55-56.) The patentee then disclosed various buffer systems that *are* capable of achieving this desired result. Notably, *all* such buffer systems include two or more buffering agents. Construing "buffer" in light of the specification, as this Court must, compels the conclusion that the inventor never intended for "buffer" to encompass only a single agent. *See, e.g., Phillips*, 415 F.3d at 1316 ("[T]he inventor's intention, as expressed in the specification, is regarded as dispositive."); *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1370 (Fed. Cir.

2003) ("[W]here the specification makes clear at various points that the claimed invention is narrower than the claim language might imply, it is entirely permissible and proper to limit the claims."); *see also Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998) (construing a patent as "disclos[ing] *only* conical shaped cups and nothing broader" where "the only reference in the . . . specification to different shapes is a recitation of prior art," and the specification "specifically distinguishes prior art as inferior and touts the advantages of the conical shape of the [patented invention].") (emphasis in original).

Plaintiffs raise four main arguments in support of their proposed construction, none of which are persuasive.

First, Plaintiffs argue that Claim 9, which depends from Claim 1, demonstrates that "buffer" is not limited to two or more substances. (*See, e.g.*, CM/ECF No. 95 at 29.) Claim 9 states, "The method of claim 1, wherein the buffer comprises a carbonate buffer and a bicarbonate buffer." ('628 Patent, cl. 9.) According to Plaintiffs, that Claim 9 limits the buffer to embodiments with at least two substances, each of which is referred to as a "buffer," demonstrates that "a person having ordinary skill in the art would understand that the 'buffer' in Claim 1 may include a single substance." (CM/ECF No. 95 at 29.)

Plaintiffs' argument is misplaced. There is no dispute that the "buffer" of Claim 9 refers to the "buffer" of Claim 1, and describes it as comprising *two* substances—a carbonate buffer and a bicarbonate buffer—which together form *the* "buffer" of Claim 1, incorporated by reference into Claim 9. Thus, while Claim 9 demonstrates that a "buffer" may include two substances, nothing in Claim 9 (or anywhere else in the '628 Patent) suggests that a "buffer" may refer to a single substance.

Second, Plaintiffs argue that the '628 Patent's incorporation by reference of U.S. Provisional Patent Application No. 60/608,957 (the "'957 Application") supports their proposed construction of "buffer." The '957 Application states that "[i]n some variations, the buffer system comprises a single buffering agent. . . . However, any number of buffering agents may be used as practicable, so long as the buffering system achieves the final pH." ('957 Application at ¶ [0047].) The '628 Patent incorporates the '957 Application by reference with the following language:

> CROSS-REFERENCES TO RELATED APPLICATIONS
> This is a continuation of U.S. application Ser. No. 11/060,641, filed Feb. 16, 2005, which claims priority to U.S. Provisional Application No. 60/608,957 (converted from U.S. application Ser. No. 10/783,118), filed Feb. 17, 2004, and U.S. Provisional Application No. 60/598,629, filed Aug. 3, 2004, each of which is herein incorporated by reference in its entirety for all purposes.

('628 Patent at 1:5-14.)

Notably, the '628 Patent does not describe with particularity the portion of the '957 application it incorporates by reference. Thus, Plaintiffs may not point to boilerplate language in the '628 Patent to argue that the '957 application is incorporated by reference in its entirety. *See, e.g.*, *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000) ("To incorporate material by reference, the host document must identify *with detailed particularity* what specific material it incorporates and clearly indicate where the material is found in the various documents.") (citing cases); *see also SkinMedica, Inc. v. Histogen*, 727 F.3d 1187, (Fed. Cir. 2013) (observing that textbook which patent purported to incorporate by reference was not helpful to claim construction analysis because the inventor did not "refer with any detailed particularity to the passages in [the textbook]" which the plaintiff claimed supported the plaintiff's proposed construction of a disputed term).

Third, Plaintiffs argue that the use of the term "buffer" in the claims of the '945 Patent, the parent of the '628 Patent, refutes Defendants' proposed construction. Specifically, Plaintiffs maintain that when the patentee sought to claim a buffer comprising two or more substances, it did so expressly in the '945 Patent whose claims are "limited to methods using multiple-buffer formulations." (*See, e.g.*, CM/ECF No. 95 at 30-31.)

Plaintiffs argument is unavailing because, when construed in light of the specification, it is apparent that Claim 1 of the '628 Patent recites a broader universe of buffers than the '945 Patent. The '945 Patent discloses a very specific type of binary buffer (i.e., one comprised of a carbonate buffer, and a bicarbonate buffer). (*See* '945 Patent, cl. 1, 14.) The "buffer" recited in Claim 1 of the '628 Patent, by contrast, is not limited to a carbonate buffer and a bicarbonate buffer as evidenced by the fact that when the patentee sought to so limit a "buffer" in the '628 Patent, it did so in Claim 9. Indeed, when read in light of the specification, it is clear that the "buffer" recited in Claim 1 may refer to a "binary buffer system comprising a carbonate salt and a bicarbonate salt," (*see, e.g.*, '628 Patent at 3:56-57), a "ternary buffer system comprising a carbonate salt, a bicarbonate salt, and a third buffering agent," (*see, e.g., id.* at 4:43-44), or a "binary buffer system comprising a metal oxide and a citrate, phosphate, or borate salt," (*see, e.g., id.* at 4:16-17).[6] Nothing in the specification, however, supports Plaintiffs' argument that a "buffer" may refer to a single substance.

Fourth, Plaintiffs argue that the prosecution history of the '628 Patent supports their proposed construction. Specifically, they argue that "[d]uring prosecution, the applicant pursued two separate independent claims—one reciting "a buffer," and the other reciting "a binary

[6] These examples are not intended to serve as an exhaustive list of what a "buffer" may refer to in the '628 Patent. The Court merely intends to illustrate why "buffer," as used in the '628 Patent, has a broader meaning than "buffer" as used in the '945 Patent.

buffer." (CM/ECF No. 95 at 30 (citing '628 File History, October 17, 2008 Amendment and Response at TRANSIZ00058934, TRANSIZ00058937).) Therefore, according to Plaintiffs, "the applicant clearly considered that the 'buffer' of Claim 1 need not be 'binary.'" (CM/ECF No. 95 at 24.)

While the Court agrees that the "buffer" recited in Claim 1 need not be binary, nothing in the record suggests that the October 17, 2008 Amendment and Response was intended to claim a *single* buffering agent. The October 17, 2008 Amendment and Response, which added the "buffer" limitation to Claim 1 of the '628 Patent, states that "support for these amendments can be found in the specification at, e.g., paragraphs 038, 042, 101, 133, and 203." ('628 File History, October 17, 2008 Amendment and Response at TRANSIZ00058940.) These paragraphs, in turn, refer to a "buffer system," (Michniak-Kohn Decl., Ex. 10 at ¶¶ 0042, 0101) and a "binary or ternary buffer system," (Michniak-Kohn Decl., Ex. 10 at ¶ 0133.)[7] None of the citations to the specification in the October 17, 2008 Amendment and Response support Plaintiffs' contention that a "buffer" may comprise *only* a single substance.

In light of the specification and the prosecution history of the '628 Patent, this Court will adopt Defendants' proposed construction for "buffer."

D. "Buffering agent"

"Buffering agent" appears in Claim 12 of the '809 Patent, the text of which is set forth in Section III.B, *supra*. Plaintiffs maintain that the Court should construe "buffering agent" as "a proton-donating component or proton-accepting component used to maintain and/or achieve an approximate pH range." Defendants' proposed construction is similar—"a proton-donating component or a proton-accepting component that changes pH."

[7] Paragraphs 038 and 203 do not reference buffers, buffering agents, or buffering systems at all.

The primary dispute between the parties is whether a buffering agent *only* changes pH. In their briefs, Defendants acknowledge that controlling (or maintaining) pH is one function of a buffering agent. (CM/ECF No. 103 at 26 (recognizing that "control[ling] the pH of a solution" is "another function of a buffering agent").) Additionally, Defendants' own expert, Dr. Bozena B. Michniak-Kohn has recognized that a "buffering agent must assist in *maintaining* the pH of saliva within [an] approximate range." (Michniak-Kohn Decl. at ¶ 43.) Yet, Defendants' proposed construction fails to encapsulate the pH-maintaining characteristic of a buffering agent. Plaintiffs' proposed construction, however, embraces both the pH-maintaining and pH-adjusting characteristics of a "buffering agent." Accordingly, the Court adopts Plaintiffs' proposed construction.

E. "Binary buffer system"

"Binary buffer system" appears in Claims 5, 6, 22, 23 of the '809 Patent. These claims State the following:

> Claim 5: The solid unit dosage composition of claim 1, further comprising a binary buffer system that raises the pH of said subject's saliva to a pH greater than about 8.5, irrespective of the starting pH of saliva.
>
> Claim 6: The solid unit dosage of claim 5, wherein the binary buffer system consists of sodium carbonate and sodium bicarbonate.
>
> Claim 22: The solid unit dosage composition of claim 12, further comprising a binary buffer system that raises pH of said subject's saliva to a pH greater than about 8.5, irrespective of the starting pH of saliva.
>
> Claim 23: The solid unit dosage composition of claim 22, wherein the binary buffer system consists of sodium carbonate and sodium bicarbonate.

Plaintiffs and Defendants' respective proposed constructions are nearly identical. Plaintiffs maintain that "binary buffer system" should be construed to mean "a system used to maintain and/or achieve an approximate pH range comprising of at least one proton-donating component and at least one proton-accepting component." Defendants' proposed construction, on the other hand, is "a system used to achieve and maintain an approximate pH range consisting of one proton-donating component and one proton-accepting component." The only difference between the proposed constructions is that Plaintiffs use the word "comprising" while Defendants use "consisting of."

"In the patent claim context the term 'comprising' is well understood to mean 'including but not limited to.'" *Cias, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1360 (Fed. Cir. 2007). "It is equally well understood in patent usage that 'consisting of' is closed-ended and conveys limitation and exclusion." *Id.* at 1361. Thus, "it is clear that 'comprise' is broader than 'consist.'" *Georgia-Pacific Corp. v. United States Gypsum Co.*, 195 F.3d 1322, 1327-28 (Fed. Cir. 1999).

Here, the '809 Patent specification clearly supports a broader construction of "binary buffer system." In relevant part, the specification defines "a binary or ternary buffer system" as a "system *comprised* of *at least* one proton donating (acidic) component and *at least* one proton accepting (basic) component." ('809 Patent at 26:62-65 (emphasis added).) The use of the words "comprised of" and "at least" in the definition makes clear that a binary buffer system may include more than just one proton-donating component and more than just one proton-accepting component. Plaintiffs' proposed construction for "binary buffer system" mirrors the language of the specification in that it includes the words "comprised of" and "at least." Defendants' proposed construction, on the other hand, seeks to limit the definition of binary

buffer system to include *only* one proton donating component and one proton accepting component. The specification's language does not support such a limitation.

As Plaintiffs' proposed construction for "binary buffer system" mirrors the language of the specification, the Court adopts Plaintiffs' proposed construction. *See Phillips*, 415 F.3d at 1315; *Martek*, 579 F.3d at 1380.

IV. CONCLUSION

For the foregoing reasons, the Court construes the disputed terms as follows:

1. The term "without residual sedative effects," as used in Claims 1 and 12 of the '131 Patent is construed to mean "with no or minimal subjective feelings of sedation, as evaluated by: (a) testing acceptably in at least one test exploring psychomotor performance, attention, information processing, and memory used by those of skill in the art; and/or (b) demonstrating plasma levels of zolpidem, at an appropriate time point, below about 29 ng/ml.

2. The term "effective amount of zolpidem" as used in Claims 1 and 12 of the '809 Patent is construed to mean "amount of zolpidem that is capable of achieving a therapeutic effect in a subject in need thereof."

3. The Preamble to Claims 1 and 12 of the '809 Patent—"a solid unit composition for the treatment of MOTN insomnia, said composition comprising"—is construed as limiting.

4. The term "buffer," as used in Claim 1 of the '628 Patent, is construed to mean "a buffer system of two or more buffering agents."

5. The term "buffering agent," as used in Claim 12 of the '809 Patent, is construed to mean "a proton-donating component or proton-accepting component used to maintain and/or achieve an approximate pH range."

6. The term "binary buffer system," as used in in Claims 5, 6, 22, and 23 of the '809 Patent is construed to mean "a system used to maintain and/or achieve an approximate pH range comprising at least one proton-donating component and at least one proton-accepting component."

An appropriate order follows.

Dated: ____ of June, 2014.

JOSE L. LINARES
U.S. DISTRICT JUDGE