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United States District Court
Northern District of California

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA

NANOENTEK, INC.,

Plaintiff,

v.

BIO-RAD LABORATORIES, INC.,

Defendant.

Case No.: C-11-06237 JCS
CLAIM CONSTRUCTION ORDER

I. INTRODUCTION

On August 2, 2011, Plaintiff NanoEnTek, Inc. (“Plaintiff”) filed a complaint alleging infringement by Defendant Bio-Rad Laboratories, Inc. (“Defendant”) of U.S. Patent No. 7,842,157 (“the ‘157 Patent”). Before the Court is the task of construing terms used in the ‘157 Patent.¹

II. OVERVIEW OF THE TECHNOLOGY

The invention disclosed in the ‘157 Patent is entitled “Method for Bonding Plastic Micro Chip.” NanoEnTek’s Opening Claim Construction Brief (“Pl.’s Br.”), Declaration of David Cotta in Support of Pl.’s Br. (“Cotta Decl.”), Ex. 1 (the ‘157 Patent). The patented method involves using an

¹ The parties have consented to the jurisdiction of a United States Magistrate Judge pursuant to 28 U.S.C. § 636(c).

1 organic solvent to bond an upper substrate and a lower substrate, with a sample filling space existing
2 between the substrates. *See* ‘157 Patent, 1:7-11. The completed micro chips are referred to as a lab-
3 on-a-chip, “which means a laboratory on a chip and is a technology for diagnosing various diseases
4 in a small chip at a time.” *Id.* at 1:21-23. A goal of the invention is to produce a micro chip with a
5 complete seal between the substrates, allowing a sample to occupy an area with a precise volume.

6 **III. LEGAL STANDARDS**

7 **A. Claim Construction Standards**

8 “It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to
9 which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312
10 (Fed. Cir. 2005) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d
11 1111, 1115 (Fed. Cir. 2004)). Generally, claim terms are given the ordinary and customary meaning
12 that would be ascribed to them by a person of ordinary skill in the field of the invention. *Id.* at
13 1312–1313; *see also Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001)
14 (“[U]nless compelled to do otherwise, a court will give a claim term the full range of its ordinary
15 meaning as understood by an artisan of ordinary skill”).

16 The most “significant source of the legally operative meaning of disputed claim language” is
17 the intrinsic evidence of record, that is, the claims, the specification and the prosecution history.
18 *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). This is because “the
19 person of ordinary skill in the art is deemed to read the claim term not only in the context of the
20 particular claim in which the disputed term appears, but in the context of the entire patent, including
21 the specification.” *Phillips*, 415 F.3d at 1313. In some cases, the specification may reveal a “special
22 definition” given by the inventor that differs from the meaning the term might otherwise possess. *Id.*
23 at 1316. In such instances, “the inventor’s lexicography governs.” *Id.* Similarly, a specification
24 may reveal “an intentional disclaimer, or disavowal, of claim scope by the inventor.” *Id.*

25 A person of ordinary skill in the art also looks to the prosecution history of a patent to
26 understand how the patent applicant and the Patent Office understood the claim terms. *Id.* at 1313,
27 1317. Arguments and amendments made during patent prosecution limit the interpretation of claim
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1 terms to exclude interpretations that were disclaimed to obtain allowance of a claim. *Southwall*
2 *Technologies, Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995).

3 While claims are to be construed in light of the specification, courts must be careful not to
4 read limitations from the specification into the claim. *Phillips*, 415 F.3d at 1323. Thus, for example,
5 if a patent specification describes only a single embodiment of a claimed invention, that does not
6 mean the claims of the patent necessarily must be construed as limited to that embodiment. *Id.*
7 Rather, it is understood that the purpose of the specification “is to teach and enable those of skill in
8 the art to make and use the invention” and that sometimes, the best way to do that is to provide an
9 example. *Id.*

10 Courts may also use extrinsic evidence in construing claim terms if it is necessary, so long as
11 such evidence is not used to “vary or contradict the terms of the claims.” *Markman v. Westview*
12 *Instruments, Inc.*, 52 F.3d 967, 981 (Fed. Cir. 1995). As the court explained in *Markman*,
13 “[extrinsic] evidence may be helpful to explain scientific principles, the meaning of technical terms,
14 and terms of art that appear in the patent and prosecution history.” 52 F.3d at 980. The Federal
15 Circuit has warned, however, that such evidence is generally “less reliable than the patent and its
16 prosecution history in determining how to read claim terms.” *Phillips*, 415 F.3d at 1318. Thus,
17 courts are free to consult dictionaries and technical treatises so long as they are careful not to elevate
18 them “to such prominence . . . that it focuses the inquiry on the abstract meaning of the words rather
19 than on the meaning of claim terms within the context of the patent.” *Id.* at 1321–22.

20 **B. Indefiniteness Standards**

21 The requirement that claims be sufficiently “definite” is set forth in 35 U.S.C. § 112, ¶ 2,
22 which provides that, “[t]he specification shall conclude with one or more claims particularly pointing
23 out and distinctly claiming the subject matter which the applicant regards as his invention.” “The
24 definiteness inquiry focuses on whether those skilled in the art would understand the scope of the
25 claim when the claim is read in light of the rest of the specification.” *Union Pacific Resources Co. v.*
26 *Chesapeake Energy Corp.*, 236 F.3d 684, 692 (Fed. Cir. 2001). In order to “accord respect to the
27 statutory presumption of patent validity,” a claim should be found indefinite “only if reasonable
28 efforts at claim construction prove futile.” *Exxon Research & Eng’g Co. v. United States*, 265 F.3d

1 1371, 1375 (Fed. Cir. 2001). A claim is not indefinite simply because its meaning is not
 2 ascertainable from the face of the claims. *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d
 3 1311, 1342 (Fed. Cir. 2003). Nor is a claim indefinite simply because it covers “some embodiments
 4 that may be inoperable.” *Exxon Research & Eng’g Co.*, 265 F.3d at 1382. A claim is indefinite,
 5 however, if it is “insolubly ambiguous, and no narrowing construction can properly be adopted.”
 6 *Amgen*, 314 F.3d at 1342 (citations omitted). To establish that a claim is indefinite an alleged
 7 infringer must “demonstrate by clear and convincing evidence that one of ordinary skill in the
 8 relevant art could not discern the boundaries of the claim based on the claim language, the
 9 specification, the prosecution history, and the knowledge in the relevant art.” *Haemonetics Corp. v.*
 10 *Baxter Healthcare Corp.*, 607 F.3d 776, 783 (Fed. Cir. 2010).

11 **IV. CONSTRUCTION OF CLAIM TERMS**

12 The parties submitted six claim terms for construction,² consistent with Patent Local Rule 4–
 13 3 and the Court’s Case Management and Pretrial Order. *See* Dkt. No. 94. The Court addresses these
 14 claim terms below.

15 **A. “wherein the bonding region is bonded by the organic solvent introduced into 16 the recesses” (Claims 1 and 5)**

17 **1. Contentions of the Parties**

18 Plaintiff’s Proposed Construction	18 Defendant’s Proposed Construction
19 No Construction Necessary. Ordinary meaning should be applied. 20 Or, 21 If Construed: “the organic solvent (a 22 carbon based liquid system capable of 23 dissolving the substrates) that is introduced 24 into the recess effects a bond between the 25 upper and lower substrates in the area of the bonding region”	“wherein the bonding region is bonded by dissolving the upper and lower substrates together by the organic solvent, by itself, introduced into the recesses”

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 27 ² The parties initially submitted a seventh claim term for construction—namely, the term
 28 “and then introducing the organic solvent into the recesses to bond the upper and lower
 substrates”—but the briefing reveals that the parties agree the term does not need to be construed.
See Pl.’s Br. at 3; Bio-Rad’s Markman Brief (“Def.’s Br.”), 6.

1 Defendant supports its proposed construction by first noting that claims 1 and 5 each recite
2 methods for manufacturing a plastic micro chip according to certain recited steps. Def.'s Br. at 7.
3 Defendant asserts that during the patent prosecution, the patentee described the invention to the
4 Patent Office as entailing "basically a two-step operation." *Id.* at 8 (citing Declaration of Jennifer
5 Hayes in Support of Def.'s Br. ("Hayes Decl."), Ex. B (Dec. 24, 2009 Response to Final Office
6 Action), 10). Defendant suggests that the patentee presented the invention as a two-step operation in
7 order to distinguish it from prior art, which requires that pressure be applied to the micro chip in
8 order for the substrates to bond. *Id.* According to Defendant, the patentee explained that after
9 introducing the organic solvent into the recesses, no further steps, such as applying pressure, were
10 required to bond the upper or lower substrates. *Id.* (citing Hayes Decl., Ex. B, 12). Thus the term
11 "by itself" should be inserted to reflect the limitation adopted during prosecution. *Id.* Defendant
12 further contends that the express language of the claims limits the claimed method to just the recited
13 steps. *Id.* at 8-9. Defendant concludes that no additional steps "beyond forming the claimed
14 recesses or fine channels, overlapping the upper and lower substrates, and introducing organic
15 solvent into the recesses or fine channels by capillary phenomenon to bond the substrates fall within
16 the scope of the claimed invention." *Id.* at 9. Defendant asserts that its construction properly limits
17 the claims. *Id.*

18 Plaintiff rejects Defendant's construction. Plaintiff first contends that no construction is
19 needed and further elaboration on the claim language is "unnecessary, unduly limiting and would not
20 help the jury understand the claim language." Pl.'s Br. at 3 (citing *Bd. of Trustees of Leland*
21 *Stanford Jr. Univ. v. Roche Molecular Sys., Inc.*, 528 F. Supp. 2d 967, 976 (N.D. Cal. 2007); *U.S.*
22 *Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997)). Plaintiff further contends
23 that Defendant's construction should be rejected because it includes two new, improper limitations.
24 First, Plaintiff argues that the phrase "dissolving the upper and lower substrates together" is an
25 unwarranted limitation because nothing in the claim language restricts bonding only by dissolving
26 the substrates. Pl.'s Br. at 5-6. Additionally, such a limitation precludes the use of
27 ethylcyanoacrylate ("cyanoacrylate"), a preferred organic solvent, which, unlike other organic
28 solvents, does not completely evaporate and thus acts as the bond between the substrates. *Id.* at 7

1 (citing Declaration of Stephen Spiegelberg in Support of Pl.’s Br. (“Spiegelberg Decl.”), ¶¶ 18, 27-
2 29); Plaintiff’s Markman Reply Brief (“Pl.’s Reply”), 3. Because the cyanoacrylate remains
3 between the substrates, the substrates cannot be dissolved “together.” *Id.* Plaintiff also asserts that
4 the limitation violates the doctrine of claim differentiation since independent claims 1 and 5 require
5 the introduction of an organic solvent while dependent claims 3 and 11 list the group of organic
6 solvents that may be introduced, which includes cyanoacrylate. *Id.* at 7-8.³

7 The second limiting phrase to which Plaintiff objects is “by itself.” Plaintiff argues that the
8 proposed construction arises out of Defendant’s misreading of the prosecution history. Pl.’s Reply at
9 4. Specifically, Plaintiff contends that the patentee’s statement during the prosecution—that the
10 claimed method was “basically a two-step operation”—was not made to distinguish prior art
11 requiring more than two steps “but to illustrate the absurdity of the examiner’s combining four
12 different prior art references to find elements of NanoEnTek’s claimed method.” *Id.* Plaintiff states
13 that it distinguished prior art on the basis that the claimed invention bonded the substrates using
14 channels to introduce a solvent by capillary action. *Id.* at 5. Plaintiff argues that the transitional
15 phrase “comprising,” used in claims 1 and 5, permits the presence of additional step, including the
16 addition of a bonding agent besides the organic solvent. Pl.’s Br. at 15 (citing *Smith & Nephew, Inc.*
17 *v. Ethicon, Inc.*, 276 F.3d 1304, 1311 (Fed. Cir. 2001); *Vivid Techs., Inc. v. Am. Science &*
18 *Engineering, Inc.*, 200 F.3d 795, 811 (Fed.Cir.1999)). Finally, Plaintiff notes that the limitation
19 should be rejected because it could potentially exclude the cyanoacrylate compound or other
20 solvents with adhesive properties that require outside stimuli to polymerize. Pl.’s Reply at 7. For
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22 ³ Defendant responds to Plaintiff’s argument by insisting that Plaintiff too narrowly defines
23 the term “together.” Def.’s Br. at 10. Defendant does not dispute Plaintiff’s description of
24 cyanoacrylate, but instead notes that “together” does not necessarily mean “touching” and thus the
25 polymerized layer cyanoacrylate produces between the substrates would not be precluded by the
addition of “together.” *Id.*

26 Defendant also notes that it intends, at a later date, to challenge dependent claims 2 and 3,
27 which recite to “cyanoacrylate compounds” and “ethylcyanoacrylate,” as invalid on the grounds that
28 the claims fail to further limit the claimed subject matter and/or for failure to sufficiently disclose.
Id. at 12 n.4-5. Accordingly, Defendant requests that the Court give Plaintiff’s arguments regarding
claim differentiation little weight. *Id.*

1 instance, cyanoacrylate requires the presence of outside stimuli (water vapor) in order to polymerize,
2 and thus does not “by itself” polymerize. *Id.*; Pl.’s Br. at 15 (citing Spiegelberg Decl. ¶ 30).

3 2. Analysis

4 “[T]he Federal Circuit has held that if commonly understood words are used, then the
5 ‘ordinary meaning of claim language as understood by a person of skill in the art may be readily
6 apparent even to lay judges, and claim construction in such cases involves little more than the
7 application of the widely accepted meaning of commonly understood words.’” *Bd. of Trustees of*
8 *Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 528 F. Supp. 2d 967, 976 (N.D. Cal.
9 2007) (quoting *Phillips*, 415 F.3d at 1314). Thus, in *Board of Trustees of Leland Stanford Junior*
10 *University*, the Court held that the claim terms “therapeutically effective” and “therapeutically
11 ineffective” required no construction because “they are neither unfamiliar to the jury, confusing to
12 the jury, nor affected by the specification or prosecution history.” *Id.* (citing *U.S. Surgical Corp.*,
13 103 F.3d at 1568).

14 On the other hand, even if a claim term has a plain and ordinary meaning, the court should
15 construe the term if construction is required to resolve a dispute about the scope of the asserted
16 claims, which is a question of law to be decided by the Court. *O2 Micro Intern. Ltd. v. Beyond*
17 *Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1361 (Fed.Cir.2008). In *O2*, for example, the Federal
18 Circuit held that the district court had erred in declining to construe the claim term “only if,” because
19 although the phrase had a “common meaning,” the parties disagreed as to its scope. *Id.* at 1362. In
20 other words, the court explained, the district court “failed to resolve the parties’ dispute because the
21 parties disputed not the meaning of the words themselves, but the scope that should be encompassed
22 by this claim language.” *Id.* at 1362.

23 Regarding the parties’ dispute over the inclusion of the word “together,” the Court agrees
24 with Plaintiff that such inclusion is unnecessary and increases, not decreases, the possibility of
25 confusion. Defendant asserts that “together” is needed to “clarif[y] the fact that the claim covers a
26 method of manufacturing a plastic micro chip comprising two parts—an upper and lower substrate—
27 that are bonded together according to the claimed method to create a completed micro chip product.”
28 Def.’s Br. at 10. However, Defendant has not identified how the absence of the word “together”

1 would cause confusion among a jury or otherwise lead to a misunderstanding about a basic goal of
2 the invention—the bonding of an upper and lower substrate. *See, e.g.*, ‘157 Patent, 5:18-19 (“A
3 method of bonding an upper substrate and a lower substrate”), 6:1-3 (“[O]verlapping the upper
4 substrate and the lower substrate each other, and then introducing the organic solvent into the
5 recesses to bond the upper and lower substrates”). Although the Court is not entirely convinced
6 by Plaintiff that the term “dissolving . . . together” would effectively exclude solvents such as
7 cyanoacrylate that form a thin layer between the substrates to effect bonding, the Court is mindful of
8 the potential risk. Defendant has simply not shown that the utility of inserting the word “together”
9 outweighs the potential for confusion identified by Plaintiff.

10 Next, the parties’ dispute concerning the insertion of the phrase “by itself” relates to the
11 scope of the claim term, rather than the term’s plain and ordinary meaning. Defendant argues that
12 the claim term should be limited—the organic solvent, “by itself,” affects the bond—while Plaintiff
13 asserts that such a limitation is unjustified. While the Court agrees with Plaintiff that insertion of the
14 term “by itself” unduly restricts the scope of the claim term, the Court finds that a narrower
15 restriction is warranted.

16 Claims 1 and 5 both use the transitional phrase “comprising” prior to reciting the steps of the
17 disclosed method. Generally, the use of the transitional phrase “comprising” does not exclude
18 additional, unrecited steps. *Dippin’ Dots, Inc. v. Mosey*, 476 F.3d 1337, 1343 (Fed. Cir. 2007). This
19 presumption, however, “does not reach into each of the [claimed] steps to render every word and
20 phrase therein open-ended-especially where, as here, the patentee has narrowly defined the claim
21 term it now seeks to have broadened.” *Id.*; *see Bd. of Regents v. BENQ Am. Corp.*, 533 F.3d 1362,
22 1373 (Fed. Cir. 2008). In *Board of Regents*, the prosecution history narrowly defined the claim term
23 “each preprogrammed code,” such that each preprogrammed code was required to be representative
24 of a syllabic element, in order to overcome anticipation by the prior art. 533 F.3d at 1372. When the
25 Board then relied on the phrase “comprising” to broaden the claim to cover a method that also
26 included preprogrammed code that was *not* representative of a syllabic element, the Federal Circuit
27 held that the Board could not “rely on the word ‘comprising’ to broaden the scope of a claim phrase
28 that was limited during prosecution so as to gain allowance of the patent.” *Id.* at 1373.

1 Defendant asserts that the presumption is overcome here since during prosecution, the
2 patentee, in order to distinguish prior art, limited claims 1 and 5 to a two-step bonding process, with
3 introduction of the organic solvent as the final step.⁴ Defendant, however, misreads the prosecution
4 history. The phrase “two-step process” is found once in the record of the prosecution before the
5 Court. In its Reply to Final Action, the patentee stated:

6 First, and with the greatest respect, Applicants believe and submit that it is
7 unreasonable to conclude that what is basically a two-step operation can only be met by
8 taking bits and pieces from four separate references. Applicants resolutely maintain that the
9 person of ordinary skill in the art considering the four references together would not have
reached Applicants’ method.

10 Cotta Decl., Ex. 7, 10. The patentee goes on to distinguish the four prior art references, not based on
11 the fact that the invention is “basically a two-step operation,” but by identifying the lack of recesses
12 and open channels in the prior art. The patentee wrote:

13 Fujiyama discloses the elements, the upper substrate, the lower -substrate and holes
14 for filling a sample. However, Fujiyama does not disclose the recesses for being bonded by
15 introducing the organic solvent, and instead requires joining the substrates by pre-sputtering
SiO₂ thin films on the surfaces to be joined.

16 McReynolds discloses grooves and/or indentations (Item 16). However the elements
17 are for communication with at least one of the channels and/or chambers, and certainly not
18 for bonding between top substrate and a bottom substrate. Rather, the Item 16 of
19 McReynolds corresponds to sample filling space channel (10) of the present invention, that
is, the Item 16 of McReynolds is not a sealed region. McReynolds simply does not teach the
use of such channels for bonding.

20 Chou discloses recesses for bonding by using an o-ring seated within the recesses.
21 However, Chou does not disclose the technical feature of present application, that is, bonding
22 by the organic solvent introduced into the recesses.

23 Ikeda merely discloses a method of bonding between an upper work piece and a
24 lower work piece, and does not disclose bonding method using recesses of the present
25 invention.

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27 ⁴ Defendant also quotes the express claim language and states that it “also limits the claimed
28 method to just the recited steps, and no additional steps.” Def.’s Br. at 8. However, Defendant’s
argument is conclusory, presenting no analysis about why the claim term limits the invention to just
the recited steps, particularly in light of the phrase “comprising.”

1 Moreover, Fujiyama, McReynolds, Chou or Ikeda do not disclose an open channel of
2 present application for bonding.

3 *Id.* at 11-12. None of the distinctions the patentee described above reveal that the patentee was
4 attempting to distinguish the invention because it comprised only two steps.

5 However, as Defendant points out, a further distinction made by the patentee does justify
6 adding a particular restriction to the construction. Specifically, in discussing whether the invention
7 requires pressure in order to create the bond, the patentee stated:

8 The recesses of the present invention are open channels, i.e. the opening of the
9 channels face the interface between the substrates so the organic solvent flows into the
10 interface. Therefore, the upper substrate and the lower substrate can be sealed only by
11 capillary phenomenon *without applying excess pressure*. However, in Fujiyama,
McReynolds, Chou and Ikeda, forming the upper substrate and the lower substrate requires
pressure.

12 *Id.* at 12 (emphasis added). The patentee plainly distinguished its invention from the prior art on the
13 grounds that the invention did not require “excess pressure.” Such a clear disavowal overcomes the
14 presumption contained in the phrase “comprising” and warrants a construction excluding such
15 “excess pressure.” *See Dippin' Dots, Inc.*, 476 F.3d at 1343. At the hearing, Plaintiff represented
16 that “excess pressure” refers to pressure beyond that required to keep the substrates together. The
17 organic solvent formed the bond between the substrates without “excess pressure;” the prior art, by
18 contrast, required “heavy pressure” to form the bond. The Court will include this distinction in the
19 construction provided below.

20 Besides the step of applying excess pressure, the presumption that the transitional phrase
21 “comprising” does not exclude additional, unrecited steps remains. Unlike in *Board of Regents*,
22 Defendant has presented no evidence that the patentee argued for a narrow claim scope during
23 prosecution that would warrant limiting the invention to only two steps. *See ResQNet.com, Inc. v.*
24 *Lansa, Inc.*, 346 F.3d 1374, 1383 (Fed. Cir. 2003) (“[The] prosecution record evinces no ‘clear and
25 unmistakable’ disavowal of claim scope that would compel a result different than the claim
26 language.”).⁵ Nor is the Court persuaded that the plain language of the term is in conflict with the

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28 ⁵ The Court also notes that the phrase “by itself” could potentially lead to confusion. The parties agree that cyanoacrylate requires “external stimuli” (water vapor) to cause polymerization; thus cyanoacrylate, a preferred organic solvent, may not be seen as “by itself” bonding the

1 use of “comprising.” Neither the term’s language nor its structure necessarily forecloses additional
2 steps beyond those listed in the ‘157 Patent.

3 Therefore, taking into account the disavowal regarding “excess pressure” as well as the use
4 of the word “comprising,” the Court construes the term as follows: “the organic solvent is introduced
5 into the recesses bonding the upper and lower substrates in the area of the bonding region, where
6 there may be, but are not required to be, additional steps in bonding, excluding bonding steps that
7 require the application of pressure on the substrates in excess of that required to hold the substrates
8 in place.”

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26 substrates. Defendant dismisses this concern, noting that the requirement of water vapor is not an
27 added step since water vapor is simply present in normal atmospheric conditions. However, the
28 phrase “by itself” is not necessarily synonymous with “no added step.” Furthermore, the Court is
not convinced that the maintenance of “normal atmospheric conditions” could not be considered an
added step during the manufacturing of the micro chips.

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B. “with the organic solvent passing through the fine channel and effecting bonding by movement of the organic solvent by capillary action” (Claim 13)

Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
<p>No Construction Necessary. Ordinary meaning should be applied.</p> <p>Or,</p> <p>If Construed: “the organic solvent (a carbon based liquid system capable of dissolving the substrates) passes through the fine channel by capillary action (the movement of a liquid along the surface of a solid caused by the attraction of molecules of the liquid to the molecules of the solid) and effects a bond between the upper and lower substrates”</p>	<p>“with the organic solvent passing through the fine channel and by itself completely bonds by dissolving the upper and lower substrates as a direct result of its movement by capillary action”</p>

The parties agree that the construction of the phrase “wherein the bonding region is bonded by the organic solvent introduced into the recesses” found in claims 1 and 5, discussed above, will largely dictate the construction of this phrase. *See* Pl.’s Reply at 15; Def.’s Br. at 8-9 (combining the discussion of both phrases). Defendant’s proposed construction does not seek to resolve any ambiguity in the claim, but rather attempts to restrict the scope of the claim. The phrase “by itself,” as discussed above, is an unwarranted limitation. Additionally, Defendant provides no justification for the inclusion of the phrases “completely bonds” and “as a direct result of.”

The Court construes the term as follows: “the organic solvent passes through the fine channel bonding the upper and lower substrates by movement of the organic solvent by capillary action. There may be, but are not required to be, additional steps in bonding, excluding bonding steps that require the application of pressure on the substrates in excess of that required to hold the substrates in place.”

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C. “wherein the recesses are open channels” (Claims 1 and 5)
1. Contentions of the Parties

Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
<p>No Construction Necessary. Ordinary meaning should be applied.</p> <p>Or,</p> <p>If Construed: “wherein the recesses are grooves with an opening that faces the interface between the substrates”</p>	<p>“wherein the recesses are unenclosed channels that are open to the perimeter interface of the substrates.”</p>

Although Plaintiff contends that the ordinary meaning of the claim terms should be applied, it recognizes that the parties dispute the relationship between “recesses,” included in independent claims 1 and 5, and “fine channels,” included in independent claim 13. Plaintiff asserts that the two terms, to some extent, overlap, i.e., “fine channels” are a type of “recess.” See Pl.’s Reply at 10. Defendants believe that the two terms are mutually exclusive.

Regarding the “open channels” term,⁶ Plaintiff argues that Defendant’s proposed construction should be rejected since it improperly requires that the channels open only to the perimeter of the interface, which essentially restricts the formation of recesses to the preferred embodiment depicted in figure 9 of the patent. Pl.’s Br. at 9-10. Instead, if the Court were to construe the term, the Court should find that the opening of a channel “faces the interface between the substrates.”⁷ Plaintiff states that this interpretation incorporates both preferred embodiments depicted in figures 6 and 9 and is thus superior to Defendant’s, which excludes a preferred embodiment. *Id.* at 9-11 (citing *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 865 (Fed. Cir. 2004)). Plaintiff also notes that this construction is consistent with the prosecution history. “In remarks accompanying a December 24, 2009 amendment, Plaintiff stated: ‘the recesses of the present invention are open channels, i.e. the opening of the channels face the interface between the

⁶ The “fine channel” term is discussed fully in the following section.
⁷ The parties appear to agree that the “interface” is the area between the upper and lower substrates where the bonding between the substrates occurs.

1 substrates so the organic solvent flows into the interface.” *Id.* at 9-10 (quoting Cotta Decl., Ex. 7,
2 12). Plaintiff asserts that since the patentee acted as its own lexicographer by clearly defining the
3 term, its definition should be applied. *Id.* at 10 (citing *Phillips*, 415 F.3d at 1316).

4 Defendant rejects Plaintiff’s analysis, arguing that the intrinsic evidence distinguishes
5 between embodiments with “recesses” and those with “fine channels.” Defendant does agree with
6 Plaintiff in that Defendant’s definition of open channels essentially limits claims 1 and 5 to the
7 embodiment depicted and described in the ‘157 Patent at figure 9. Def.’s Br. at 15. Defendant
8 argues its construction is proper because during the prosecution, the claim limitations reciting
9 “recesses” were added as an amendment to the claims that ultimately issued as claims 1 and 5 of the
10 ‘157 Patent, and the prior claim language reciting a “fine channel” limitation was cancelled from
11 claims 1 and 5. *Id.* Defendant asserts that only when the claim language was changed from “fine
12 channels,” which Defendant asserts are enclosed, to “recesses” that are “open channels,” did the
13 examiner allow those claims. *Id.* Thus, Defendant concludes, “fine channels” and “open channels”
14 cannot mean the same thing, and, furthermore, must “be construed to recite entirely different
15 embodiments of the patent, as reflected by Figures 5-8 (showing the claimed fine channels) and
16 Figure 9 (showing the claimed open channels).” *Id.* at 15, 18. As a result, “open channels” can open
17 only to the “perimeter interface of the substrates” as depicted in figure 9. *Id.* at 17.

18 In Plaintiff’s reply, it argues that “fine” and “open” are not necessarily mutually exclusive.
19 “Open,” as defined in the prosecution history, means that the portion of the channel that faces the
20 interface is open or not enclosed, while “fine” merely reflects a narrower sizing of the channel. Pl.’s
21 Reply at 9. Plaintiff points to remarks accompanying the December 24, 2009 amendment where the
22 patentee stated:

23 The presently claimed invention is characterized in that recesses are formed in each of side
24 lower ends of the bonding region of the upper substrate, *the recesses are fine open channels*
25 in preferably the upper substrate as illustrated, so that the channels are open to the interface
between the substrates, and the organic solvent is thus introduced by capillary action.

26 *Id.* (citing Cotta Decl, Ex. 7, 11) (emphasis added). Plaintiff argues that since it defined a channel as
27 being both “fine” and “open,” a construction that gives the terms “fine” and “open” conflicting
28 definitions would be inappropriate. *Id.* Plaintiff also argues that Defendant’s construction does not

1 take into account that the patent uses the term “recesses” in independent claim 5 and “fine channel”
2 in dependent claim 6. As Plaintiff explains:

3 Claim 5 includes step “a” which requires “forming recesses in each of side lower ends of a
4 bonding region of the upper substrate.” 157 patent at 5:53-56. Claim 6 depends from Claim 5
5 and adds the further limitation “forming one or more holes for introducing the organic
6 solvent communicating with the fine channel when the fine channel is formed in the step of
7 (a).” *Id.* at 6:9-12. Claim 6 thus teaches that “fine channels” are a type of recess formed in
8 step (a) of Claim 5. Bio-Rad’s proposed construction makes Claim 6 impossible because the
9 recess cannot be both open to the perimeter and sealed.

10 *Id.* at 9-10.⁸

11 2. Analysis

12 The parties do not dispute the meaning of terms “open” and “channel.” *See* Def.’s Br. at 15
13 (“[T]he common meaning of the term ‘open’ and ‘channel’ is not the primary basis of the dispute
14 between the parties regarding the meaning of this claim term.”); Pl.’s Reply at 7-8 (“Bio-Rad agrees
15 that that there is no dispute regarding the common meaning of ‘open’ and ‘channel’ . . .”). Rather,
16 the dispute centers on Defendant’s proposed claim limitation, requiring that the recesses “open to the
17 perimeter interface of the substrates.” The parties agree that this would limit claims 1 and 5 to the
18 embodiment depicted in figure 9, which shows the solvent channels open to the outside of the micro
19 chip. Defendant’s proposed limitation, however, is unsupported by the record.

20 To begin, nothing in the claims themselves limits the orientation of the “open channel.” The
21 patentee, however, explicitly disclosed the orientation of the “open channels” during prosecution.
22 The patentee stated: “The recesses of the present invention are open channels, i.e. the opening of the
23 channels face the interface between the substrates so the organic solvent flows into the interface.”
24 Cotta Decl., Ex. 7 (Dec. 24, 2009 Response to Final Office Action), 12. Further, the preferred
25 embodiments included in the specification and depicted in both figures 6 and 9 are consistent with
26 the orientation described during the prosecution. That is, both “recesses” and “fine channels” face
27 the interface between the substrates.

28 ⁸ Defendant contends that it intends to challenge dependent claim 6, and other dependent
claims that recite a “fine channel,” as invalid pursuant to 35 U.S.C. § 112, ¶ 2, because “these claims
depend on claim 5, and refer to steps in claim 5 that do not recite ‘fine channels.’” Def.’s Br. at 14
n.6.

1 Defendant’s proposed construction runs counter to the evidence described above and
2 Defendant’s attempt to justify this departure is unpersuasive. Defendant presents no basis for its
3 conclusion that “fine channel” and “open channel” are incompatible and cannot both be present in
4 the same embodiment.⁹ While the Court agrees that the terms are not interchangeable, it does not
5 follow that “open channels” cannot also be “fine channels.” This remains true even if, as discussed
6 below, the Court adopts Defendant’s construction of “fine channels.” Furthermore, because
7 Defendant’s proposed construction excludes a preferred embodiment—while Plaintiff’s covers every
8 preferred embodiment—Defendant’s proposed construction is disfavored. *See Adams Respiratory*
9 *Therapeutics, Inc. v. Perrigo Co.*, 616 F.3d 1283, 1290 (Fed. Cir. 2010) (“A claim construction that
10 excludes the preferred embodiment is rarely, if ever, correct and would require highly persuasive
11 evidentiary support.”) (internal quotation marks omitted).

12 Although there is no dispute regarding the meaning of the terms “open” and “channel,” the
13 Court will nonetheless provide a construction of the terms in order to resolve the parties’ dispute
14 regarding the scope of the claim. *See O2 Micro Intern. Ltd.*, 521 F.3d at 1362. For the reasons
15 discussed above, the Court rejects Defendant’s proposed construction limiting the scope of the claim
16 and will construe the claim to state: “wherein the recesses are open channels with an opening that
17 faces the interface between the substrates.”¹⁰

23 ⁹ The fact that the patentee amended claims 1 and 5 to substitute “recesses” for “fine
24 channels” does not support Defendant’s argument. *See Cotta Decl.*, Ex. 7 (Dec. 24, 2009
25 Amendments). Defendant’s assertion that such a change was necessary to gain approval from the
26 examiner is conclusory. Indeed, Defendant’s assertion is undermined by the presence of the term
27 “fine channel” in dependent claims 6, 8, and 9, as well as the inclusion of an entirely new claim in the
28 same December 24 amendments (now independent claim 13) that discloses a “fine channel,” not
“recesses.” *Id.* at 8-9.

¹⁰ Plaintiff’s proposed construction does not materially differ from the Court’s construction
except for Plaintiff’s insertion of “grooves” in place of “open channels.” Plaintiff, however, does
not provide a reason for the replacement and the Court does not believe it is warranted or necessary.

1 **D. “fine channel” (Claims 6-9, 13)**

2 **1. Contentions of the Parties**

Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
<p>3</p> <p>4</p> <p>5 No Construction Necessary. Ordinary meaning should be applied.</p> <p>6</p> <p>7 Or,</p> <p>8 If Construed: “a groove open to the interface in the place where the bond is formed between the upper and lower substrates”</p>	<p>9</p> <p>10</p> <p>11 “a sealed region between the upper and lower substrates and having a height and width for capillary action”</p>

12 Plaintiff argues that there is no need to construe the above claim since the plain meaning of both “fine” and “channel” are well known and would not be confusing to a jury. Pl.’s Br. at 20. Further, Plaintiff rejects Defendant’s proposed construction “because [it] conflates a ‘channel’ with an area and is thus likely to confuse the jury.” *Id.* For support, Plaintiff cites to remarks made by the patentee accompanying the February 27, 2009 Amendment. The patentee stated:

13 The present invention is characterized in that a fine channel space for filling an organic solvent is provided, and the fine channel space bonds the upper and lower substrates in a bonding region of a circumference of the sample filling space of the upper substrate, that is, the fine channel space is a sealed region between the upper and lower substrates.

14 Cotta Decl., Ex. 10, 10 (emphasis original). Plaintiff asserts that the above remark describes where the “fine channels” are located— “[t]hey are ‘in a bonding region,’ that is ‘a sealed region between the upper and lower substrates.’” Pl.’s Br. at 21. Thus, Plaintiff “does not contest that the fine channels are *in* a sealed region,” but does disagree with Defendant that the channels are themselves “a sealed region.” *Id.* (emphasis original). Plaintiff agrees with Defendant that, if the Court decides to construe the claim, it would be appropriate to include “having a height and width for capillary action.” *Id.* at 22.

15 Defendant does not respond to Plaintiff’s argument regarding whether the fine channels are themselves a sealed region or are merely in a sealed region. Defendant, however, does insist that the “fine channels” “are sealed,” noting that “the *only* figures and description in the specification that

1 show a fine channel depict one that is sealed.” Def.’s Br. at 14-15 (citing ‘157 Patent, Figs. 5-8).
2 Specifically, the embodiment shown in figures 6 and 7 identifies an *enclosed* space (“30”) and the
3 term “fine channel” is the only term used to define that space. *Id.* at 16. Defendant argues that its
4 contention that the channels are sealed (or, are “a sealed region”) is further supported by a different
5 embodiment depicted in figure 9 that identifies an *unenclosed* space (“30”) and the term “recesses,”
6 and not “fine channels,” is used to define that space. *Id.* Additionally, because the embodiment
7 depicted in figure 9 does not include a “fine channel,” that embodiment is excluded from claims 6-9
8 and 13. *Id.*

9 In reply, Plaintiff argues that it is improper to limit “fine channel” to the embodiments of
10 figures 5-8 “for the same reasons it is error to limit the construction of ‘open channels’ to the
11 embodiment of figure 9.” Pl.’s Reply at 11.

12 2. Analysis

13 The key dispute between the parties regarding the “fine channel” claims concerns whether
14 the fine channels are enclosed within the micro chip. If they are required to be so enclosed, then the
15 embodiment depicted in figure 9, which shows unenclosed “recesses,” is not covered by the “fine
16 channel” claims. Although Plaintiff’s Reply Brief asserts that restricting the claims to figure 5-8
17 would be improper, it acknowledges in its opening brief that such a restriction is warranted. Plaintiff
18 states that it “does not contest that the fine channels are *in* a sealed region,” but simply disagrees
19 with Defendant that the channels themselves are “a sealed region.” Pl.’s Br. at 21 (emphasis
20 original). As Defendant’s point out, the specification uses only “fine channel” to describe an
21 enclosed space (“30”) in figures 6 and 7 representing a preferred embodiment. ’157 Patent, 4:33 (“A
22 fine channel space 30”), 4:38-39 (“the fine channel 30”), 4:45 (“the fine channel space 30”), 4:47
23 (“the fine channel 30”), 4:48-49 (“the fine channel 30”), 4:53 (“the fine channel 30”). A different
24 embodiment depicted in figure 9 defines an unenclosed space (“30”) simply as “recesses.” *Id.* at
25 4:60-67.

26 Additionally, the “solvent introducing holes,” which are used to introduce solvent into an
27 otherwise closed space, are only described in relation to “fine channels.” Claim 6 states “forming
28 one or more holes for introducing the organic solvent communicating with the fine channel.” *Id.* at

1 6:9-11. Claim 13 similarly states, “further adapted to provide solvent delivery holes whereby
2 solvent can be delivered to the fine channel.” *Id.* at 6:47-48. The specification similarly identifies
3 the solvent introducing holes only in relation to the “fine channel” contained in the two
4 embodiments depicted in figures 5-8. *See id.* at 4:35-39 (“In addition, organic solvent introducing
5 holes 35 communicating with the fine channel are formed at each of the apexes so that the organic
6 solvent can be introduced into the fine channel.”), 4:57-59 (“Fig. 8 shows a plastic micro chip
7 having an enlarged organic solvent introducing holes 35 for easily introducing the organic solvent
8 into the fine channel space 30.”). Not surprisingly, the third embodiment depicted in figure 9 does
9 not identify any solvent introducing holes, instead stating that “[t]he upper substrate 120 and the
10 lower substrate 140 of the bonding region 20 can be bonded each other [sic] by introducing the
11 organic solvent into the recesses.” *Id.* at 4:64-67. Because the third embodiment discloses an
12 unenclosed channel, there is no reason to have solvent introducing holes; the solvent can simply be
13 introduced into the open recess.

14 Finally, as noted above, the patentee explicitly disclaimed that the fine channels are found in
15 an unenclosed area. The patentee stated:

16 The present invention is characterized in that a fine channel space for filling an organic
17 solvent is provided, and the fine channel space bonds the upper and lower substrates in a
18 the fine channel space is a sealed region between the upper and lower substrates.

19 Cotta Decl., Ex. 10, 10 (emphasis original). Although this remark speaks to a “fine channel space”
20 as opposed to simply a “fine channel,”¹¹ it is not possible to read the above remark as allowing the

21
22 ¹¹ To the extent this dispute exists, the Court notes that whether a “fine channel” *is* a sealed
23 region or is simply *in* a sealed region is largely irrelevant; either way, the “fine channel” is enclosed.
24 The Court, however, does find that the “fine channel” is not itself a sealed region. As can be seen
25 from looking at claim 13, for instance, the fine channel is formed “in each side lower ends of a
26 bonding region of the upper substrate.” ‘157 Patent, 6:44-46. The fine channel is formed on the
27 upper substrate, which is then joined together with the lower substrate, and then solvent is
28 introduced into the fine channel to bond the upper substrate with the lower substrate. *See id.* at 6:38-
55. The method for bonding the substrates could not be accomplished if the fine channel was sealed
(i.e., “a ‘fine channel’ is a sealed region”) since the fine channel needs to be open to the interface
between the substrates so the solvent can interact with both substrates. Additionally, the Court
interprets the patentee’s remark during prosecution that “the fine channel space is a sealed region
between the upper and lower substrates” as merely identifying the “sealed region between the upper
and lower substrates” as “the fine channel space.” The remark did not specifically refer to the

1 fine channel claim to reach the invention disclosed in the third embodiment depicted in figure 9. *See*
2 *N. Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1345–46 (Fed. Cir. 2005)
3 (excluding from claim scope certain embodiments in the drawings based on disclaimer during
4 prosecution).

5 As Plaintiff readily concedes in its opening brief, the claims, the specification, and the
6 prosecution history all demonstrate that a “fine channel” exists only in an enclosed space. In light of
7 this highly persuasive evidence, the Court finds that the “fine channel” claims are incompatible with
8 the third embodiment depicted in figure 9.

9 As the Court noted in the previous section, the conclusion that a “fine channel” exists only in
10 an enclosed space is consistent with the conclusion that a “recess,” or “open channel,” exists in an
11 enclosed space as well as an unenclosed space, such as that depicted in figure 9. This is because a
12 “fine channel” is a type of “recess.” Independent claim 5 discloses a method of manufacturing the
13 micro chip, “the method comprising: (a) forming recesses” ‘157 Patent at 5:52-53. Dependent
14 claim 6 states:

15 The method according to claim 5, further comprising a step of forming one or more holes for
16 introducing the organic solvent communicating with the fine channel when the fine channel
is formed in the step of (a).

17 *Id.* at 6:9-12. Thus, while claim 5’s formation of recesses in step (a) is compatible with every
18 embodiment, dependent claim 6 identifies a type of recess—“fine channel” with solvent introducing
19 holes—that is particular only to certain embodiments.

20 The Court accordingly construes “fine channel” as “an open channel located in a sealed
21 region between the upper and lower substrates having a height and width for capillary action.”
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28 separate noun “fine channel,” and the Court will not treat the terms as interchangeable based on a
single remark during prosecution.

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E. “A sample filling space having a predetermined height for filling a sample between the upper and lower substrate” (Claims 1 and 5)

1. Contentions of the Parties

Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
<p>No Construction Necessary. Ordinary meaning should be applied.</p> <p>Or,</p> <p>If Construed: The area between the sample introduction hole and the sample discharge hole (i.e. the sample filling space) is designed to have a specific non-variable height defined by the distance between the upper and lower substrate</p>	<p>Predetermined height: A specific height without a bonding tolerance.</p>

Plaintiff argues that the above claim need not be construed since the terms Defendant proposes to construe—“predetermined” and “height”—are common and well understood. Pl.’s Br. at 16. Plaintiff further contends that Defendant’s proposed construction should be rejected because it reads into the claims a limitation that is not supported by the claim language—the term “bonding tolerance.” *Id.* Plaintiff asserts that this term is used only once to describe a preferred embodiment in the specification, and thus its inclusion in the claims would be improper. *Id.* at 16, 19 (citing, *inter alia*, *Phillips*, 415 F.3d at 1323).

Defendant asserts that the prosecution history and specification “clearly demonstrate that Plaintiff acted as its own lexicographer to define the ‘predetermined height’ of the sample filling space.” Def.’s Br. at 23. Defendant contends that an important advantage of the invention is to “precisely control the height of the channel” and the invention thus claims to seal the sample filling space “‘without a bonding tolerance’ by bonding according to its manufacturing method.” *Id.* at 24 (citing Hayes Decl., Ex. G (June 27, 2012 Remarks), 5-6; ‘157 Patent, 5:3-9, 4:53-56, 2:21-26).

In its reply, Plaintiff states that it does not object to the portion of Defendant’s construction specifying that “predetermined height” means “a specific height.” Pl.’s Reply at 14. Plaintiff,

1 however, does reject Defendant’s assertion that it acted as its own lexicographer and redefined the
2 term “predetermined height.” *Id.* at 14-15. Rather, Plaintiff argues that nowhere in the claims,
3 specification, or prosecution history did it provide a definition of “predetermined height.” *Id.*

4 2. Analysis

5 Claim terms should generally be given their ordinary and customary meaning unless “1)
6 when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee
7 disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner v.*
8 *Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). “To act as its own
9 lexicographer, a patentee must clearly set forth a definition of the disputed claim term” *Id.*
10 (internal quotation marks omitted). Defendant’s proposed construction relies only on the first
11 circumstance.

12 Nothing in the record before this Court shows that Plaintiff clearly redefined the term
13 “predetermined height.” None of the passages cited by Defendant even contain the term
14 “predetermined height.” Although a precise sample filling space is a goal of the invention, it does
15 not follow that Plaintiff redefined “predetermined height” to exclude a bonding tolerance by
16 emphasizing the importance of the space’s size. Additionally, “bonding tolerance” appears once in
17 the description of an embodiment in the specification, as follows:

18 The acetone remaining in the fine channel 30 is rapidly evaporated into the air, and the
19 bonding region 20 is firmly bonded while sealing the sample filling space 10 without a
bonding tolerance.

20 ‘157 Patent, 4:53-56. This description of an embodiment falls well short of “clearly set[ting] forth a
21 definition” of “predetermined height.” *See Thorner*, 669 F.3d at 1365.

22 Because the parties agree that “predetermined height” should be construed as “specific
23 height,” the Court will construe the claims accordingly. The term’s construction is as follows: “A
24 sample filing space having a specific height for filling a sample between the upper and lower
25 substrates.”

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F. “forming recesses in each of side lower ends of a bonding region of the upper substrate” (Claims 1, 5), “the fine channel being provided in each of side lower ends of a bonding region of the upper substrate” (Claim 13)

1. Contentions of the Parties

Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
<p>No Construction Necessary. Ordinary meaning should be applied.</p> <p>Or,</p> <p>If Construed: Forming recesses on the underside of the upper substrate at each of the ends of the bonding region</p>	<p>Indefinite</p>

Plaintiff contends that the above phrases need no construction and are not indefinite. Pl.’s Br. at 11. Plaintiff asserts that the phrases simply describe where the recesses and fine channels are located: “the lower side (underside; ‘side lower’) of the upper substrate at the ends of the bonding region.” *Id.* Plaintiff further contends that if the location is unclear from the claim language alone, the specification, including its depictions of the embodiments, provides ample information for a person of normal skill in the art to discern the location. *Id.* at 11-14.

Defendant, however, asserts that “[n]either the claim language nor the specification sheds any light, or otherwise defines what the ‘side lower ends of a bonding region of the upper substrate’ is—or where one might locate it.” Def.’s Br. at 20. Defendant argues that while the drawings and specification define the “bonding region” as the region where the bonding of the upper *and* lower substrates occurs, the specification does not describe a “bonding region of the upper substrate at all.” *Id.* Defendant also cites to the prosecution history of a continuation application of the ‘157 Patent, which Defendant argues shows that Plaintiff admits that the claim “requires forming the recesses in side lower ends of a region that has not yet been formed.” *Id.* at 22 (citing Hayes Decl., Ex. G, 7). Even if it were possible to locate the bonding region of the upper substrate, Defendant contends that the claims are indefinite because the bonding region does not have “side lower ends.” *Id.* The upper

1 substrate has side lower ends, but the bonding region does not have any sides and is at the interface
2 of the upper and lower substrates. *Id.*

3 2. Analysis

4 Section 112 ¶ 2 requires that the claims shall “particularly point[] out and distinctly claim []
5 the subject matter which the applicant regards as his invention.” This requirement is met “when a
6 person experienced in the field of the invention would understand the scope of the subject matter that
7 is patented when the claim is read in conjunction with the rest of the specification.” *Typhoon Touch*
8 *Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1384 (Fed. Cir. 2011). “If the claims when read in light of
9 the specification reasonably apprise those skilled in the art of the scope of the invention, § 112
10 demands no more.” *Id.* (quoting *S3 Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 1367 (Fed. Cir. 2001)).
11 Because the Court finds that a person of ordinary skill in the field of the invention would understand
12 the location of the recesses and fine channels when the claims are read in conjunction with the
13 specification, the claims are not indefinite.

14 The parties do not dispute that the above claims describe the location of the recesses and fine
15 channels. While the claim language is not a model of clarity, the Court does not doubt that a person
16 of ordinary skill would, looking at the depictions in the specification, be able to determine the
17 claimed location of the recesses and fine channels. *See Advanced Cardiovascular Sys., Inc. v.*
18 *Scimed Life Sys.*, 96 F. Supp. 2d 1006, 1020 n.6 (N.D. Cal. 2000) (“The Federal Circuit has held that
19 ‘drawings alone may provide a written description of an invention as required by § 112.’” (quoting
20 *Wang Labs., Inc. v. Toshiba Corp.*, 993 F.2d 858, 866 (Fed. Cir. 1993))). In particular, figures 6 and
21 9 of the ‘157 Patent show the location of the fine channels and recesses, respectively—they are in
22 the underside of the upper substrate at the ends of the bonding region. Defendant does not contest
23 that the figures show where the recesses and channels are formed.

24 Rather, Defendant argues that the claims are unclear because there is no bonding region of
25 the upper substrate; there is only a bonding region between the substrates. Defendant’s argument is
26 unpersuasive. The claims and the specification indisputably identify a “bonding region” and a
27 person of ordinary skill would be reasonably apprised that the bonding region of the upper substrate
28 is where the upper substrate connects to the lower substrate to form the bonding region between the

1 substrates. Defendant’s argument relying on comments made in a later patent prosecution is
2 similarly rejected. *See* Def.’s Br. at 22 (“[T]he bonding region of the present invention is created by
3 virtue of the organic solvent introduced into the fine channels.” (citing Hayes Decl., Ex. G, 7)). The
4 fact that the bonding region may be formed subsequent to the forming of the fine channels and/or
5 recesses does not mean that a person of ordinary skill could not reasonably determine where the
6 recesses and fine channels are located. The claims and the specification identify the location of the
7 bonding region, and the recesses and fine channels can be formed there even if the bonding region
8 itself is absent. Finally, Defendant’s argument that a “bonding region” does not have “side lower
9 ends” misreads the claims. The claims recite “side lower ends of a bonding region of the upper
10 substrate,” that is to say, “side lower ends of the upper substrate’s bonding region.” The claims
11 identify the bonding region simply as *where* on the upper substrate the recesses and fine channels
12 form; they do not require that the recesses and fine channels form on a bonding region separate from
13 the upper substrate. The Court accordingly finds that the above terms are not indefinite.

14 In addition, the Court finds that the following construction is necessary: “forming recesses in
15 the underside of the upper substrate at the ends of the bonding region” (claims 1, 5), “the fine
16 channel being provided in the underside of the upper substrate at the ends of the bonding region”
17 (claim 13).

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IV. CONCLUSION

For the reasons stated above, the Court adopts the following claim constructions:

Claim Term	Court’s Construction
1. “wherein the bonding region is bonded by the organic solvent introduced into the recesses”	“the organic solvent is introduced into the recesses bonding the upper and lower substrates in the area of the bonding region, where there may be, but are not required to be, additional steps in bonding, excluding bonding steps that require the application of pressure on the substrates in excess of that required to hold the substrates in place”
2. “with the organic solvent passing through the fine channel and effecting bonding by movement of the organic solvent by capillary action”	“the organic solvent passes through the fine channel bonding the upper and lower substrates by movement of the organic solvent by capillary action. There may be, but are not required to be, additional steps in bonding, excluding bonding steps that require the application of pressure on the substrates in excess of that required to hold the substrates in place”
3. “wherein the recesses are open channels”	“wherein the recesses are open channels with an opening that faces the interface between the substrates”
4. “fine channel”	“an open channel located in a sealed region between the upper and lower substrates having a height and width for capillary action”
5. “A sample filling space having a predetermined height for filling a sample between the upper and lower substrate”	“A sample filing space having a specific height for filling a sample between the upper and lower substrates”
6. “forming recesses in each of side lower ends of a bonding region of the upper substrate” and “the fine channel being provided in each of side lower ends of a bonding region of the upper substrate”	“forming recesses in the underside of the upper substrate at the ends of the bonding region” and “the fine channel being provided in the underside of the upper substrate at the ends of the bonding region”

Finally, the Court sets a Case Management Conference (“CMC”) for February 15, 2013 at 1:30 p.m. The parties shall submit a joint CMC statement by February 8, 2013, which addresses the parties’ requested schedules for the remainder of this case.

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IT IS SO ORDERED.

Dated: January 23, 2013



JOSEPH C. SPERO
United States Magistrate Judge