IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

ENERPOL, LLC, *Plaintiff,* v. SCHLUMBERGER TECHNOLOGY CORPORATION, *Defendant.*	§ § § § § § § § § § § § §	Case No. 2:17-CV-00394-JRG

MEMORANDUM OPINION AND ORDER

On February 28, 2018, the Court held a hearing to determine the proper construction of the disputed claim terms in United States Patent No. 6,949,491 ("the '491 Patent). The Court has considered the arguments made by the Parties at the hearing and in their claim construction briefs. (Dkt. Nos. 84, 93, & 100). The Court has also considered the intrinsic evidence and made subsidiary factual findings about the extrinsic evidence. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005); *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The Court issues this Claim Construction Memorandum and Order in light of these considerations.

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I. BACKGROUND

A. The ’491 Patent

The ’491 Patent was filed on September 24, 2002, issued on September 27, 2005, and is titled “Method and Materials for Hydraulic Fracturing of Wells.” The ’491 Patent relates to hydraulic fracturing processes that inject a degradable polymer phase as a fracturing fluid. ’491 Patent at Abstract. The specification states that in one embodiment, “the degradable plastic may be placed in a wellbore near a formation to be fractured as a dispersed or discontinuous phase in a carrier fluid, so as to control pressure losses in the wellbore during placement.” *Id.* at 3:58–62. The specification adds that “[t]he degradable plastic is then converted to a continuous or external phase and used as the fracturing fluid to form a fracture near a wellbore, such that it has high effective viscosity in the fracture.” *Id.* at 3:62–65.

The specification also states that “[i]n most applications, at least some of the degradable plastic injected carries a proppant into the fracture.” *Id.* at 4:1–3. The specification explains that “[i]njection of a degradable plastic phase can be used in a variety of well applications, including: forming a short fracture having length sufficient to bypass damage to permeability near a wellbore; placing proppant near a wellbore in a previously formed fracture; replacing damaged proppant near a wellbore in a previously formed fracture; preventing overflushing of proppant after a fracturing treatment; preventing flowback of proppant after a fracturing treatment; and forming a fracture, that may remain plugged for a selected time, before gravel packing or performing other completion or workover operations are performed in a well.” *Id.* at 4:3–14.

Claim 24 of the ’491 Patent is an exemplary claim and recites the following elements (disputed term in italics):

> 24. A method for hydraulic fracturing of a formation penetrated by a wellbore, comprising:

(a) forming a slurry comprising a degradable thermoplastic polymer in a *solid form* in a carrier fluid and placing the slurry in the wellbore;
(b) with a displacement fluid having a *selected* specific gravity, displacing the slurry down the wellbore to a *selected* location in the wellbore;
(c) converting the slurry to a *continuous liquid phase* having a specific gravity and *comprising the carrier fluid dispersed in the degradable polymer* at the *selected* location in the wellbore; and
(d) applying pressure to the displacement fluid, the *selected* specific gravity of the displacement fluid being less than the specific gravity of *the continuous liquid phase,* to inject *the continuous liquid phase* into the formation to form a hydraulic fracture.

II. APPLICABLE LAW

A. Claim Construction

This Court's claim construction analysis is guided by the Federal Circuit's decision in *Phillips v. AWH Corporation*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). In *Phillips*, the Federal Circuit reiterated that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." 415 F.3d at 1312. The starting point in construing such claims is 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, i.e., as of the effective filing date of the patent application." *Id.* at 1312–13.

However, *Phillips* made clear that "the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* at 1313. For this reason, the specification is often 'the single best guide to the meaning of a disputed term.'" *Id.*at 1315. However, it is the claims, not the specification, which set forth the limits of the patentee's invention. *Id.* at 1312. Thus, "it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear

indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). Other asserted or unasserted claims can also aid in determining a claim's meaning. *See, e.g., Phillips*, 415 F.3d at 1314 (use of "steel baffles" and "baffles" implied that "baffles" did not inherently refer to objects made of steel).

The prosecution history also plays an important role in claim interpretation as intrinsic evidence of how the U.S. Patent and Trademark Office ("PTO") and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. *See also Microsoft Corp. v. Multi-Tech Sys., Inc.*, 357 F.3d 1340, 1350 (Fed. Cir. 2004) (noting that "a patentee's statements during prosecution, whether relied on by the examiner or not, are relevant to claim interpretation"); *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1361 (Fed. Cir. 2017) (applying this principle in the context of *inter partes* review proceedings). However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 1318. *See also Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (ambiguous prosecution history may be "unhelpful as an interpretive resource").

In addition to intrinsic evidence, courts may rely on extrinsic evidence such as "expert and inventor testimony, dictionaries, and learned treatises." *Id.* at 1317. As the Supreme Court recently explained:

> In some cases . . . the district court will need to look beyond the patent's intrinsic evidence . . . to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.

Teva Pharm. USA, Inc. v. Sandoz, Inc., 135 S. Ct. 831, 841 (2015). However, the Federal Circuit has emphasized that such extrinsic evidence is subordinate to intrinsic evidence. *Phillips*, 415 F.3d at 1317 ("[W]hile extrinsic evidence can shed useful light on the relevant art, we have

explained that it is less significant than the intrinsic record in determining the legally operative meaning of claim language." (internal quotation marks omitted)).

B. Definiteness Under 35 U.S.C. § 112(2) (pre-AIA) / § 112(b) (AIA)

"[I]ndefiniteness is a question of law and in effect part of claim construction." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012). The ultimate question is whether a claim, when viewed in light of the intrinsic evidence, "inform[s] those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). If it does not, then the claim is invalid as indefinite. 35 U.S.C. § 112(2). Whether a claim is indefinite is determined from the perspective of one of ordinary skill in the art as of the time the application for the patent was filed. *Id.* at 2130.

III. CONSTRUCTION OF DISPUTED TERMS

The Parties' dispute the meaning and scope of five terms/phrases in the '491 Patent. Each dispute is addressed below.

A. "polymer-continuous liquid phase"

Disputed Term	Plaintiff's Proposal	Defendant's Proposal
"polymer-continuous"	"comprising an accumulated network of polymer such that one could travel from one side of a given sample to another within the polymer network"	"polymer-continuous liquid phase" is a single limitation. Plaintiff's apparent attempt to split this limitation is improper. "polymer-continuous liquid phase" has a plain and ordinary meaning. For clarity, "polymer-continuous liquid phase" means a polymer that is entirely in liquid form.
"liquid phase"	a phase (e.g. polymer, mixture of polymer and a liquid) that takes the shape of its container	

1. The Parties' Positions

The Parties dispute whether the phrase "polymer-continuous liquid phase" should be construed as one term, as Defendant proposes, or two terms, as Plaintiff proposes. The Parties further dispute whether the term "polymer continuous" is an "accumulated network of polymer . . . ," as Plaintiff proposes, or if it is simply a "polymer," as Defendant contends. The Parties also dispute whether the term "liquid phase" requires the "degradable polymer" to be "entirely in liquid form," as Defendant contends, or whether it may be a "polymer mixture of polymer and a liquid," as Plaintiff contends.

Plaintiff argues that the term "polymer-continuous" is a compound adjective that indicates: (1) the claimed "liquid phase" must have a "continuous" component; and (2) that the component must be "polymer." (Dkt. No. 84 at 11). According to Plaintiff, a material is "continuous" when it forms an accumulated network such that "one could travel from one side of a sample to another without leaving the accumulated network." (*Id.* at 11-12) (citing '491 Patent at 8:20–21, 8:65–9:2, Fig.2(d); Dkt. Nos. 83-8, 83-10, 83-2, 83-11, 83-12). Plaintiff also argues that "continuous" networks are characterized by accumulation. (Dkt. No. 84 at 13–14) (citing '491 Patent at 8:1–5, 8:18–21, 8:27–31, 9:20–27, 7:15–17). Plaintiff further contends that both solids and liquids can form "continuous" networks, and that "continuous" material forms a network. (*Id.* at 13-14) (citing Dkt. No. 83-14 at 4:55–56, 4:60–63; '491 Patent at 13:64–14:1; Dkt. Nos. 84-15, 84-16). Plaintiff also argues that the specification and dependent claims confirm that the state of being "polymer-continuous" is available to solids as well as liquids. (*Id.* at 16) (citing '491 Patent at 8:31–34, 4:23–25, 12:54–59, 8:18–21, 10:63–67).

Regarding the term "liquid phase," Plaintiff argues that the specification teaches three critical aspects of the "liquid phase": (1) the "liquid phase" may be a single material, or a mixture of materials; (2) the "liquid phase" as a whole must be able to flow (under frac pressure) into the

perforations and the formation itself, and may comprise solid particles; and (3) the features of the "liquid phase" in the context of the patent are central to the invention. (*Id.* at 18). According to Plaintiff, the specification describes how the inventive "phase" can be either a single material, such as polymer, or a mixture of polymer with some carrier fluid. (*Id.* at 19) (citing '491 Patent at 5:6–15, 8:65–9:1, 8:27–31). Plaintiff contends that Defendant's construction precludes the possibility of any non-liquid component. (*Id.* at 20). Plaintiff further argues that the "liquid phase" must be able to flow and conform to the shape of its container. (*Id.* at 21) (citing Dkt. Nos. 84-21, 84-22, 84-23).

Plaintiff also contends both the claims and the description confirm that the "liquid phase" may have solids within it. (*Id.* at 21–22) (citing '491 Patent at Claims 1 and 23, 8:18–21, 7:64–8:5). Plaintiff argues that the ability to maintain polymer-continuity while still permitting flow was critical to the invention. (*Id.* at 24) (citing '491 Patent at 11:3–6, 9:27–28, 4:61–65, 7:15–20, 11:23–27, 12:42–45, 8:27–28, 8:18–21). Plaintiff contends that the "injection" of the liquid phase is carried out before the polymer degrades away. (*Id.* at 24–25) (citing '491 Patent at 6:57–63, 5:20–24). According to Plaintiff, it is the novel combination of flowability, capacity for polymer-continuity, and existence at that critical time period that makes a "liquid phase." (*Id.* at 25).

Defendant responds that the words that precede "phase" are modifiers that tell the public about the specific characteristics of the claimed phase. (Dkt. No. 93 at 10). Defendant contends that it must be a liquid phase, which is "continuous, and includes "the degradable thermoplastic polymer." (*Id.*) (citing Dkt. Nos. 84-2, 84-8; '491 Patent at 3:56–65; 8:65–9:1). Defendant argues that Plaintiff ignores the claim language and improperly seeks to expand claim 1's recitation of a "polymer-continuous liquid phase." (*Id.* at 11). Defendant contends that the patentee cannot redefine plain claim language ("polymer-continuous liquid phase") by including other

embodiments with a broader or different scopes. (*Id.* at 12).

Defendant argues that the patentee understood the distinction between a solid or liquid polymer. (*Id.* at 12–13) (citing ’491 Patent at 7:15–20, 4:20–23, 9:1–15, 8:35–39, Fig. 2(c)). Defendant further argues that when the patentee wanted to write that the recited polymer remains in a solid state, he did so without using the term “polymer-continuous liquid phase” and instead used the term “polymer-continuous polymer phase.” (*Id.* at 13) (citing ’491 Patent at 14:48–52). Defendant contends that Plaintiff seeks to avoid the word “liquid” in the claimed limitation “polymer-continuous liquid phase” by pointing to one paragraph in the specification that teaches a non-liquid or partially non-liquid phase. (*Id.* at 14) (citing ’491 Patent at 14:48–52).

Defendant also argues that the prosecution history confirms that embodiments reciting a “polymer-continuous polymer phase” are distinct from those reciting a “polymer-continuous liquid phase.” (*Id.* at 14) (citing Dkt. Nos. 93-4, 93-5). Defendant further argues that technical dictionaries disclosed by both Parties state that one of skill in the art would know that “phase” is a homogenous part of a heterogenous physical system. (*Id.* at 16) (citing Dkt. Nos. 93-6, 93-3, 93-7, 93-8). According to Defendant, a “polymer-continuous liquid phase” must be entirely liquid. (*Id.* at 17).

Defendant next argues that the ’491 Patent does not describe a “polymer-continuous liquid phase” as a solid polymer mixed with a liquid. (*Id.* at 17–18). Defendant contends that nothing in the ’491 Patent meets the standard for a patentee to act as his own lexicographer. (*Id.* at 19). Defendant argues that the ’491 Patent falls short of the exacting standard needed to redefine terms readily understood in the art of hydraulic fracking, and does not provide a “clear limiting description[]” for the definition of “polymer-continuous liquid phase,” “continuous liquid phase,” “liquid phase,” or “phase.” (*Id.* at 20). Defendant also argues that no other portion of the

specification provides a "clear limiting description" of the scope of the word "phase." (*Id.* at 21) (citing '491 Patent at 5:37–40). Defendant contends that hydraulic fracturing is the correct field of art of the '491 Patent, and not colloid science. (*Id.* at 21) (citing '491 Patent at 1:10–12). According to Defendant, Plaintiff does not identify a colloid science text that supports its argument that a mixture of solids and liquids constitutes a "liquid phase" as long as it "remains flowable." (Dkt. No. 93 at 22).

Plaintiff replies that Defendant does not challenge its description of how a "continuous" network arises from accumulation of polymer. (Dkt. No. 100 at 2). Plaintiff also argues that the specification teaches how a "continuous phase" forms from the "accumulation" or "close packing" of pellets or particles. (*Id.* at 3). Plaintiff further argues that the '491 Patent establishes that "liquid phase" can comprise a mixture of solids in carrier fluid. (*Id.* at 4) (citing '491 Patent at 5:11–14). Plaintiff contends that nothing in the patent applies differential treatment to solid and liquid polymer, or transitions between the two, and they participate in the invention in similar ways. (*Id.* at 4) (citing '491 Patent at 7:15–21). According to Plaintiff, the '491 Patent expressly defines "phase" to include a mixture of two different materials (solid polymer and carrier fluid), and rebuts Defendant's argument that "phase" can only be a homogenous, bounded region, not a mixture. (*Id.* at 5) (citing '491 Patent at 5:9–11). Plaintiff further contends that the only place the specification applies the name "polymer-continuous liquid phase" is to the entire mixture. (*Id.* at 6) (citing '491 Patent at 9:1–3).

Plaintiff also argues that claim 23 and the specification confirm that the "liquid phase" may comprise solids. (*Id.* at 7–8) (citing '491 Patent at 7:64–8:6, 8:18–21, 5:38–40). Plaintiff contends that "liquid" applies to the "phase" as a whole, and does not exclude solids. (*Id.* at 8). Finally, Plaintiff argues that it is for the fact-finder to determine what products employ a "polymer-

continuous liquid phase," and not the Court. (*Id.* at 9)

For the following reasons, the Court finds that the phrase **"polymer-continuous liquid phase"** should be construed to mean **"polymer in a liquid state that is greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation."**

2. Analysis

The phrase "polymer-continuous liquid phase" appears in asserted claim 1 of the '491 Patent. Claim 1 recites the following:

> 1. A well treatment method for treating a formation around a wellbore, the formation having a fracturing pressure, comprising:
> (a) transporting *a degradable thermoplastic polymer* in *a solid bulk form* down the wellbore;
> (b) displacing *a polymer-continuous liquid phase* comprising *the degradable thermoplastic polymer* from the wellbore into the formation at a pressure greater than the fracturing pressure of the formation.

'491 Patent at Claim 1 (emphasis added). The claim language and the intrinsic evidence indicates that "a degradable thermoplastic polymer" is converted from "a solid bulk form" in Step A, to "a polymer-continuous liquid phase" in Step B. Specifically, Step A provides antecedent basis for "the degradable thermoplastic polymer" recited in Step B. The Summary of the Invention provides further context of this conversion:

> In one embodiment, the degradable plastic may be placed in a wellbore near a formation to be fractured as a dispersed or discontinuous phase in a carrier fluid, so as to control pressure losses in the wellbore during placement. *The degradable plastic is then converted to a continuous or external phase* and used as the fracturing fluid to form a fracture near a wellbore, such that it has high effective viscosity in the fracture.

Id. at 3:58–65 (emphasis added). The specification adds that "[t]he degradable polymer for the present invention *may begin as a rigid solid* that is placed in the wellbore where *it becomes a viscous liquid* having a selected viscosity that can be injected through the perforations and, acting as a fracturing fluid, exert fluid pressure on the rock around the well sufficient to hydraulically

fracture the formation." *Id.* at 7:15–21 (emphasis added). Similarly, the specification states that "FIG. 2(e) illustrates element 29 of proppant-laden *polymer-continuous liquid phase fracturing fluid*, formed when *polymer 24 in pellets 25 becomes the continuous or external phase* and carries proppant 26 along with dispersed carrier fluid 28 into a fracture." *Id.* at 9:1–5 (emphasis added); *see also, id.* at 11:1–6 ("*Degradable polymer* that contains no proppant particles, such as shown in FIG. 2(a), *may be placed in the well first*. In this instance, *after the polymer has become the continuous phase of the polymer phase*, such as shown in FIG. 2(d), it may be forced or squeezed into the formation at fracturing pressures to form a fracture that will not be propped.") (emphasis added).

As indicated, converting a degradable thermoplastic polymer from "a solid bulk form" to "a polymer-continuous liquid phase" is critical to the disclosure. Specifically, it was this conversion that solved the need for a method for "*placing relatively small amounts of high viscosity (greater than about 0.1 poise) fracturing fluid in a wellbore near a selected interval of the formation* where the fluid is to be injected *without incurring the normal high pressure losses in the wellbore* as the fracturing fluid is injected into the formation to form a hydraulic fracture." *Id.* at 7:58–63 (emphasis added). Accordingly, the phrase "polymer-continuous liquid phase" refers to fluid that is displaced into the formation to form a hydraulic fracture in Step B. Thus, the Court finds that the phrase "polymer-continuous liquid phase" should be construed as a single phrase. However, to efficiently address the Parties' arguments, the analysis will address the terms as presented by Plaintiff.

i. "polymer-continuous"

The intrinsic evidence indicates that "polymer-continuous" requires the polymer to be "greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation."

Specifically, the specification states the following:

> In one embodiment, *the high-viscosity fracturing fluid of this invention, which will be referred to as a degradable polymer, is placed in the wellbore in the form of pellets or particles* and transported through tubulars in the wellbore while dispersed in a low-viscosity carrying fluid. *The degradable polymer is then accumulated in the wellbore at a selected location, preferably in the casing near and above the perforations, so that it becomes a continuous or external phase.* Some amount of carrying fluid will then become dispersed (i.e., become the discontinuous phase) in the degradable polymer. . . . *The fractional volume of degradable polymer in the carrying fluid-degradable polymer mixture when it is being pumped down the well should be in the range such that polymer is not the continuous phase* or such that lubricated flow of the polymer occurs in the tubing until the polymer is near the depth it is to be injected.

Id. at 7:64–8:13 (emphasis added). As indicated, the specification discloses the polymer's conversion from the discontinuous or internal phase to the continuous or external phase. Specifically, the degradable polymer is initially the discontinuous phase of the fluid until it accumulates in the wellbore to become the continuous phase of the fracturing fluid. The specification further clarifies the term "continuous" by stating the following:

> *When degradable polymer becomes the continuous or external phase, the fraction of degradable polymer will have increased to greater than about 50 percent by volume*. Higher degradable polymer fractions are preferred because proppant concentration in the fracturing fluid and the fracture will be increased.

Id. at 8:21–28 (emphasis added). Thus, the intrinsic evidence explicitly states that the polymer becomes the recited "continuous" phase when it is "greater than fifty percent (50%) by volume of the fracturing fluid." Indeed, the patentee distinguished the prior art during prosecution by arguing that it taught a polymer concentration of only about 4% by weight. (Dkt. No. 93-13 at 2) ("Nimerick discloses a fluid comprising a mixture of hydrated and unhydrated polymer in a particulate form (Abstract and col. 2, line 16). The concentration of polymer may be as high as 350 pounds per thousand gallons, which is only about 4 per cent by weight, which is still is a dilute solution or dispersion of polymer in liquid. In contrast, Applicant teaches transporting a degradable polymer down the wellbore that is in bulk phase.").

Turning to the Parties' constructions, the Court notes that the Parties' constructions are on opposite ends of the spectrum. Plaintiff's construction is overly broad and includes a fluid with a polymer in any state. Defendant's construction is unduly narrow and requires the fluid to be a polymer entirely in a liquid state. The Court rejects both extreme positions. First, Defendant's construction fails to give the term "continuous" any meaning. In fact, Defendant's construction drops "continuous" from the recited phrase. Defendant fails to provide any justification for removing "continuous" from the claim. *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) ("A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."). Accordingly, the Court rejects Defendant's construction.

The Court rejects Plaintiff's construction because it is based on extrinsic evidence that is inconsistent with the intrinsic evidence. According to Plaintiff, the "term 'continuous,' and its meaning, were known to [the inventor] and others in the colloid sciences." (Dkt. No. 84 at 11). Plaintiff cites to a number of dictionaries that define "continuity" as "one could travel through the solid phase from one side of the sample to the other without having to enter the liquid." (*Id.* at 12) (citing Dkt. Nos. 84-8, 84-9, 84-10, 84-2).

Defendant responds that the intrinsic record confirms that colloid science is not the "art" of the claimed invention. (*Id.* at 2). Defendant argues that Plaintiff's extrinsic evidence defines "colloid" as an "aggregate of very fine particles dispersed in a continuous medium." (*Id.* at 3). However, the specification states that "[t]he polymer is present as a bulk phase, i.e., not as a finely divided or disperse material." '491 Patent at 5:13-14. Defendant is correct that Plaintiff's dictionary definitions are inconsistent with this intrinsic evidence.

Plaintiff responds in a footnote that "[a]lthough colloids may not have been as well known in oil field technology, aspects of the patented technology do involve colloids and colloid

concepts." (Dkt. No. 100 at 3 n.3). However, the only mention of colloids in the specification is the reference to "encapsulating material designed to decrease stickiness of the pellets . . . Such encapsulating materials, such as high polymers and colloidal silica, are well known." '491 Patent at 8:53–57. The referenced encapsulating material is not the claimed "polymer-continuous liquid phase," but instead is referring to material that may encapsulate the degradable polymer pellet for transport down the wellbore. *Biovail Corp. Int'l v. Andrx Pharms., Inc.*, 239 F.3d 1297, 1300 (Fed. Cir. 2001) ("When intrinsic evidence unambiguously describes the scope of a patented invention, reliance on extrinsic evidence is improper"). Accordingly, the Court rejects the Plaintiff's construction.

Finally, Plaintiff's construction includes the phrase "an accumulated network of polymer." Plaintiff argues that "continuous" networks are characterized by accumulation, and that "continuous" material forms a network. (Dkt. No. 84 at 13–15). Defendant does not address this aspect of Plaintiff's construction. Plaintiff is correct that the specification indicates that the polymer is "accumulated in the wellbore . . . so that it becomes a continuous or external phase." '491 Patent at 8:1–5. However, the Court's construction captures and clarifies the accumulation aspect by reciting that the polymer becomes "continuous" when it is "greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation."

ii. "liquid phase"

The Parties dispute whether the term "liquid phase" requires the "degradable polymer" to be "entirely in liquid form," as Defendant contends, or whether it may be a "polymer mixture of polymer and a liquid," as Plaintiff contends. Plaintiff argues that the patentee acted as his own lexicographer and explicitly defined the term "phase" contrary to its ordinary meaning. According to Plaintiff, the term "phase" includes a polymer-carrier fluid mixture. (Dkt. No. 84 at 19) (citing

’491 Patent at 5:6–15). Defendant responds that “[t]he word ‘phase’ as appears in the claim term ‘polymer-continuous liquid phase’ has a well-known and accepted meaning; it is a portion of a physical system that has boundaries, and is homogenous within those boundaries.” (Dkt. No. 93 at 10). Defendant further contends that Plaintiff’s lexicographer fails because the patentee did not claim a “polymer phase,” but instead more specifically claimed a “polymer-continuous *liquid* phase.” (*Id.* at 11).

The Court generally agrees with Defendant’s arguments regarding the term “phase,” but does not agree with Defendant’s construction. Plaintiff contends that the patentee explicitly defined the term “phase” to mean a polymer-carrier fluid mixture when he stated the following:

> The preferred fracturing fluid disclosed herein is described as *a “polymer phase” containing a degradable polymer. A polymer phase may be the polymer or a mixture of the polymer and a liquid, which will usually be a carrier fluid.* The polymer is present as a bulk phase, i.e., not as a finely divided or disperse material. Additives may be present in the polymer phase.

’491 Patent at 5:6–15 (emphasis added). Plaintiff is correct that this indicates that a “polymer phase” may include the polymer and a liquid. However, the disputed term is “polymer-continuous *liquid* phase,” and not merely a “polymer phase.” The specification states that “*[t]he degradable polymer for the present invention may begin as a rigid solid that is placed in the wellbore where it becomes a viscous liquid* having a selected viscosity that can be injected through the perforations and, acting as a fracturing fluid, exert fluid pressure on the rock around the well sufficient to hydraulically fracture the formation.” ’491 Patent at 7:15–21 (emphasis added). If the patentee had intended to claim a “polymer-continuous polymer phase,” he could have done so.

Indeed, the prosecution history indicates that the patentee amended the provisional specification by changing the description of Figures 2(a)-2(e) from “polymer-continuous phase” to “polymer-continuous liquid phase.” (Dkt. Nos. 93-4, 93-5). It would be improper to redraft the claim language as “polymer-continuous polymer phase,” instead of the recited “polymer-

continuous *liquid* phase." *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004) ("[W]e construe the claim as written, not as the patentees wish they had written it.").

Plaintiff's construction further defines "liquid" as anything "that takes the shape of its container." The Court finds that this language is overly broad and unsupported by the intrinsic evidence. As noted during the claim construction hearing, both a gas and a liquid can "take the shape of its container." Thus, Plaintiff's construction improperly expands the term "liquid" to include a gas, or anything that takes the shape of its container. This would effectively render the term "liquid" meaningless.

That said, the Court does not adopt Defendant's construction because it would require the fluid that does the fracturing in the formation (*i.e.*, not just the "polymer-continuous liquid phase") to be "entirely" liquid polymer. This is inconsistent with the specification because it would preclude the possibility of a non-liquid component in the fracturing fluid. As discussed above, claim 1 indicates a conversion of the polymer from a "solid bulk form" to a "polymer-continuous liquid phase." The specification states that "*[t]he degradable polymer for the present invention may begin as a rigid solid that is placed in the wellbore where it becomes a viscous liquid* having a selected viscosity that can be injected through the perforations and, acting as a fracturing fluid, exert fluid pressure on the rock around the well sufficient to hydraulically fracture the formation." '491 Patent at 7:15–21 (emphasis added). Thus, a person of ordinary skill in the art would understand that at least a percentage of the degradable polymer must change from a solid to a liquid. However, there is no requirement that all degradable polymer be in a liquid form, or that all of the fracturing fluid must be a liquid polymer.

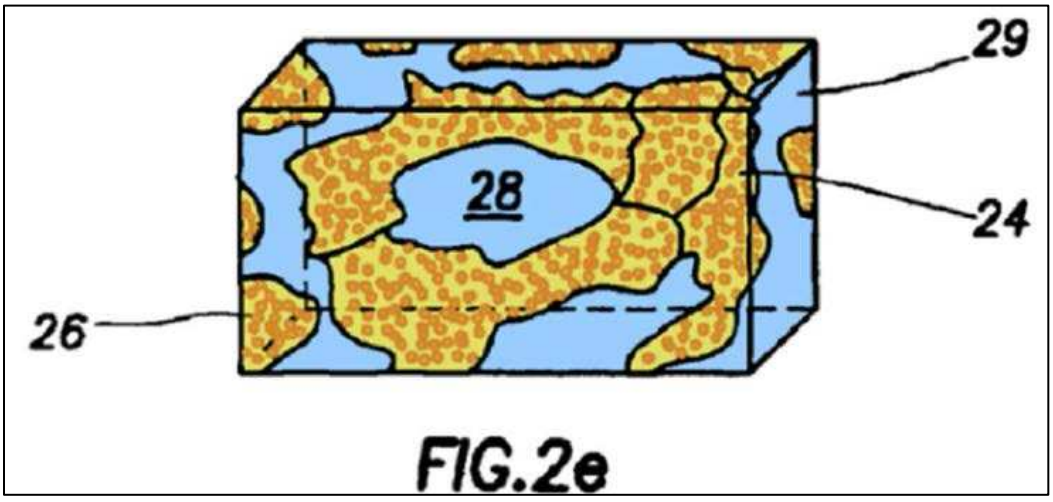
Instead, claim 1 only requires displacing a fracturing fluid that includes a "polymer-continuous liquid phase." *See, e.g.*, '491 Patent at 11:3–6 (describing how polymer in a

"continuous" form is displaced into the formations via application of pressure), 9:27–28 (describing how "[t]he polymer phase is . . . extruded through the perforations" into the rock formation); 4:61–65 (describing "injecting" the fracturing fluid into the formation), 12:42–45 (describing how disclosed techniques may be used "to inject degradable polymer into a wellbore for any application").

The specification further indicates that this "injection" of the liquid phase, in the polymer-continuous form, is carried out before the polymer degrades away. In other words, it exists in a state of polymer-continuity for a period of time, during which it is delivered to the formation. *Id.* at 6:57–63 (describing how the degradation period may be selected to complete pumping of the polymer into the formation). As discussed above, this requires "polymer in a liquid state that is greater than fifty percent (50%) by volume of a fracturing fluid." *Id.* at 8:21–24. Thus, the intrinsic evidence requires the fracturing fluid include a minimum amount of polymer in a liquid state, and does not exclude the possibility of a non-liquid component in the fracturing fluid. Indeed, this would read an unwarranted and improper "entirely liquid polymer" requirement into claim 1.

To be sure, a person of ordinary skill in the art would understand that claim 1 does not require the fracturing fluid to be an entirely liquid polymer. *See, e.g.*, *id.* at 7:10–15 ("Experiments reported in U.S. Pat. No. 4,716,964, which is incorporated by reference herein, illustrate how the D, L-polylactide, which was initially a rigid solid, degraded to a compliant thermoplastic mass, to a sticky semi-solid, to a viscous liquid and finally to a small amount of residue in water."). Indeed, Figure 2(e) illustrates a fracturing fluid that includes both dispersed carrier fluid and proppant. *Id.* The specification states that "FIG. 2(e) illustrates element 29 of proppant-laden polymer-continuous liquid phase fracturing fluid, formed when polymer 24 [yellow] in pellets 25 becomes the continuous or external phase and carries proppant 26 [orange] along with dispersed carrier

fluid 28 [blue] into a fracture."). *Id.* at 9:1–5.



Id. at Figure 2(e) (color added). In summary, the "continuous" limitation only requires the fracturing fluid to include a *liquid* polymer that is greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation. Finally, in reaching its conclusion, the Court has considered the extrinsic evidence submitted by the Parties and given it its proper weight in light of the intrinsic evidence.

3. Court's Construction

For the reasons set forth above, the Court construes the phrase **"polymer-continuous liquid phase"** to mean **"polymer in a liquid state that is greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation."**

B. "continuous liquid phase . . . comprising the carrier fluid dispersed in the degradable polymer"

Disputed Term	Plaintiff's Proposal	Defendant's Proposal
"continuous liquid phase . . . comprising the carrier fluid dispersed in the degradable polymer"	"a polymer-continuous liquid phase comprising a dispersed carrier fluid"	Plain and ordinary meaning. For clarity, "continuous liquid phase … comprising the carrier fluid dispersed in the degradable polymer" means the continuous polymer includes, but is not limited to, a degradable polymer that is entirely in liquid form with carrier fluid disperse within it.

1. The Parties' Positions

The Parties agree that this phrase should have the same meaning as the previous phrase. Plaintiff argues that the true dispute then is simply what "polymer-continuous" and "liquid phase" mean. (Dkt. No. 84 at 30). Plaintiff further argues that the Court should adopt its proposal for those terms. (*Id*.)

Defendant responds that the language of claim 24 further refutes Plaintiff's construction for both terms. (Dkt. No. 93 at 24). Defendant argues that Plaintiff contends that "slurry" "refers to the same concept" as the "phase" in Figure 2(d). (*Id.* at 25). According to Defendant, this interpretation cannot be reconciled with claim 24's recitation that the slurry has been "converted" into a "continuous liquid phase" that comprises the polymer that began as the solid component of the slurry. *Id.* Defendant argues that if this was correct, then no conversion would be necessary. (*Id*.)

Plaintiff replies that the Parties agree that the Court's construction of "polymer-continuous" and "liquid phase" will be dispositive as to this claim term. (Dkt. No. 100 at 10). Plaintiff argues that there is no requirement in the specification that the "conversion" involve a change in the polymer's state of matter. (*Id.*)

For the following reasons, the Court finds that the phrase **"continuous liquid phase"** should be construed to mean **"polymer in a liquid state that is greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation."**

2. Analysis

The phrase "continuous liquid phase . . . comprising the carrier fluid dispersed in the degradable polymer" appears in asserted claim 24 of the '491 Patent. As suggested by the Parties, the Court finds that the intrinsic evidence indicates that "continuous liquid phase" should have the same meaning as the previous phrase. Starting with the claim language, Step A of claim 24 recites "forming a slurry comprising *a degradable thermoplastic polymer in a solid form in a carrier fluid*" at the surface to place into the wellbore. The "slurry" refers to a mixture of the polymer in solid form and the carrier fluid. *See, e.g.,* '491 Patent at Claim 19 ("forming a slurry of the degradable polymer in a carrier fluid"); 8:27–28 ("A slurry of polymer particles in placement fluid"); 10:10–11 ("A slurry of carrier fluid and pellets is formed").

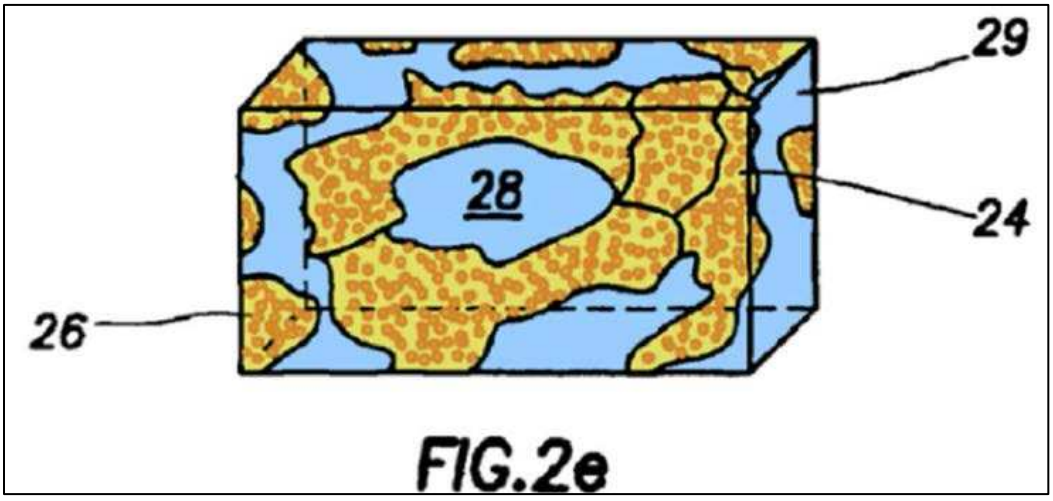
In Step B, the slurry is then displaced to a selected location in the wellbore. Step C then requires "*converting* the slurry *to a continuous liquid phase* . . . comprising the carrier fluid dispersed in the degradable polymer . . . ." In Step D, the "continuous liquid phase" is then injected into the formation to form a hydraulic fracture. Claim 24 states that the "continuous liquid phase" results after "converting" the "slurry." Thus, the steps in claim 24 are similar to the steps in claim 1, and the phrases are intended to have the same general meaning.

As discussed with the previous phrase, the specification states that "*[w]hen degradable polymer becomes the continuous or external phase, the fraction of degradable polymer will have increased to greater than about 50 percent by volume*. Higher degradable polymer fractions are preferred because proppant concentration in the fracturing fluid and the fracture will be increased." '491 Patent at 8:21–28. Thus, the intrinsic evidence explicitly states that the polymer becomes the

recited "continuous" phase when it is "greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation."

However, there is no requirement that all of the degradable polymer be in a liquid form, or that all of the fracturing fluid must be a liquid polymer. Instead, the intrinsic evidence requires the fracturing fluid include a minimum amount of polymer in a liquid state, but does not exclude the possibility of a non-liquid component in the fracturing fluid. In summary, the "continuous" limitation only requires the fracturing fluid to include a *liquid* polymer that is greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation.

The remaining language of the disputed phrase indicates that the recited carrier fluid may be dispersed in the "degradable polymer." For example, Figure 2(e) illustrates a fracturing fluid that includes both dispersed carrier fluid and proppant. Specifically, the specification states that "FIG. 2(e) illustrates element 29 of proppant-laden polymer-continuous liquid phase fracturing fluid, formed when polymer 24 [yellow] in pellets 25 becomes the continuous or external phase and carries proppant 26 [orange] along with dispersed carrier fluid 28 [blue] into a fracture."). *Id.* at 9:1–5.



Id. at Figure 2(e) (color added). Finally, in reaching its conclusion, the Court has considered the

extrinsic evidence submitted by the Parties, and given it its proper weight in light of the intrinsic evidence.

3. Court's Construction

For the reasons set forth above, the Court construes the phrase **"continuous liquid phase"** to mean **"polymer in a liquid state that is greater than fifty percent (50%) by volume of the fluid that does the fracturing in the formation."**

C. "selected"

Disputed Term	Plaintiff's Proposal	Defendant's Proposal
"selected"	Plain and ordinary meaning (chosen)	Plain and ordinary meaning, which for clarity is "chosen (intentionally) from a range of options."

1. The Parties' Positions

The Parties agree that something is "selected" when it is "chosen." The Parties dispute whether selected requires intentionally choosing from a range of options, as Defendant proposes. Plaintiff argues that that term "selected" is clear and understandable to a layman and needs no construction. (Dkt. No. 84 at 25). Plaintiff further argues that "selected" is used in claims 22 and 24 to describe depth, location, and specific gravity. *Id.* Plaintiff contends that "selected" conveys that a particular parameter has previously been chosen. (*Id.* at 26) (citing '491 Patent at 10:48–52, 8:1–8:5, Abstract). Plaintiff further argues that general usage dictionaries define "select" as "to make a choice or selection." *Id.* (citing Dkt. Nos. 84-27, 84-28, 84-29). According to Plaintiff, nothing in the intrinsic or extrinsic record supports Defendant's limitation that the selection be intentional. (*Id.* at 27).

Defendant responds that its construction clarifies for the jury that the act of selecting is intentional, and based on a range of options. (Dkt. No. 93 at 27). Defendant argues that its construction "clarifies that the act of selecting is intentional, as opposed to an unintended or

haphazard result." (*Id.* at 28). Defendant contends that accumulation of the polymer "at a selected depth" requires the well operator make an active and intentional choice of where along the thousands of feet of wellbore the polymer arrives, within a margin of error of a few feet. *Id.* (citing '491 Patent at. 7:50–57). Defendant argues that the depth at which the polymer collects has not been "selected" by chance, but by design and testing. (*Id.* at 18) (citing '491 Patent at 4:65–5:2, 6:47–52). Defendant further contends that the plain language of claim 24 conveys that the well operator must make an intentional decision on a location (within a reasonable range). (*Id.* at 18). Defendant argues that the specification similarly discloses intentionally modifying the specific gravity of the polymer pellets to control their placement in the wellbore. (*Id.*) (citing '491 Patent at 8:48–53).

Plaintiff replies that the specification shows that a parameter can be "chosen" without a specific intent. (Dkt. No. 100 at 9) (citing '491 Patent at 10:48–52). Plaintiff contends that the specification teaches that a slurry of polymer and carrier fluid "may be pumped or pressured all the way to the perforations or may be displaced to any selected depth in the well[.]" (*Id.*). Plaintiff argues that since the slurry may be displaced to "any" selected depth, a particular purpose or intent behind the choice of depth is not required, and it could be chosen to suit a purpose, or it could be random. (*Id.* at 9). According to Plaintiff, the only requirement is that a depth be selected (*i.e.*, chosen). (*Id.*)

For the following reasons, the Court finds that the term **"selected"** should be given its **plain and ordinary meaning.**

2. Analysis

The term "selected" appears in asserted claims 22 and 24 of the '491 Patent. Claim 22 recites that "the polymer-continuous liquid phase is formed by accumulating the degradable

polymer at a selected depth in the wellbore." Claim 24 recites that the displacement fluid has a "selected specific gravity," and that the slurry is displaced to a "selected location in the wellbore." The Court finds that the term is used consistently in the claims and is intended to have the same general meaning in each claim.

The Parties agree that something is "selected" when it is "chosen." However, the Court finds that construing "selected" as "chosen" does not provide further clarity. In fact, a jury would not be confused or fail to understand "selected" in the context of the claims. Therefore, the term will be given its plain and ordinary meaning. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir 2008) ("Claim construction 'is not an obligatory exercise in redundancy.' Rather, '[c]laim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement.'") (citations omitted).

Turning to the Parties' construction, the Court rejects Defendant's construction because it adds an intent element to the claims. Defendant argues that "selected depth" of claim 22 "requires the well operator make an active, intentional, choice of where along the thousands of feet of wellbore the polymer arrives within a margin of error of a few feet." (Dkt. No. 93 at 28). According to Defendant, "[t]he depth at which the polymer collects has not been 'selected' by chance, but by design and testing." (*Id.*) Regarding claim 24, Defendant argues that "the well operator must make an intentional decision on a location (within a reasonable range)." (*Id.*) Defendant confirmed at the claim construction hearing that their construction would require intentionally selecting one option from a group of two or more options.

The Court finds that Defendant has not provided a persuasive reason to read this type of "intent" limitation into the claims. Instead, the Court finds that the recited "depth in the wellbore,"

the recited "specific gravity," and the recited "location in the wellbore" are "selected" in a targeted manner to facilitate the fracturing process. In other words, "selected" requires making a conscious selection or choice when one or more options presents itself. However, this selection does not necessarily require prior design or testing, as Defendant contends.

Likewise, the selection or choice is not purely random, as Plaintiff suggests. Accordingly, the Court rejects Plaintiff's argument that the choice "could be random." (Dkt. No. 100 at 9). In other words, "selected" requires a conscious act, but does not necessarily require "a range of options," and/or a previous analysis of a range of options. Finally, in reaching its conclusion, the Court has considered the extrinsic evidence submitted by the Parties, and given it its proper weight in light of the intrinsic evidence.

3. Court's Construction

For the reasons set forth above, the term **"selected"** will be given its **plain and ordinary meaning.**

D. "low-viscosity"

Disputed Term	Plaintiff's Proposal	Defendant's Proposal
"low-viscosity"	"having a low resistance to flow"	Indefinite. But to the extent this term is not indefinite, then it means "less than 0.1 poise."

1. The Parties' Positions

The Parties dispute whether the term "low-viscosity" is indefinite. Defendant contends that claim 23 does not recite objective values to bound "low-viscosity." (Dkt. No. 93 at 26). Defendant also argues that claim 23 does not recite that the fluid has a "low-viscosity" in relation to some known viscosity. (*Id.*) According to Defendant, the '491 Patent contains only one objective statement of viscosity: a "high viscosity … fracturing fluid" is "greater than about 0.1 poise." (*Id.*)

(citing ’491 Patent at 7:57–58). Defendant also argues that the specification fails to explain where to measure the claimed viscosity. (*Id.* at 26) (citing ’491 Patent at 7:57–60; 16:65–67). Defendant contends that Plaintiff’s construction uses different words, but raises the same indefiniteness problem because it does not inform what constitutes “low resistance.”

Plaintiff argues that viscosity is a well-known term addressing resistance to flow. (Dkt. No. 84 at 27). Plaintiff contends that the need for a low-viscosity fluid is based on pumpability, because high-viscosity materials are difficult to pump down a wellbore. (*Id.*) (citing ’491 Patent at Abstract). Plaintiff argues that the purpose of a “low-viscosity fluid” is to aid in pumping the mixture hundreds of feet down a wellbore. (Dkt. No. 100 at 10). Plaintiff further argues that the claims do not require a particular value of the viscosity of the mixture. (Dkt. No. 84 at 28). According to Plaintiff, one of skill in the art would understand that “low-viscosity,” refers to a material that has a sufficiently low resistance to flow to allow the mixture to be pumped down a wellbore. (*Id.*)

For the following reasons, the Court finds that the term **“low-viscosity”** is not indefinite, and should be given its **plain and ordinary meaning**.

2. Analysis

In order to meet the “exacting standard” to prove indefiniteness, an accused infringer must demonstrate by clear and convincing evidence that the claims, read in light of the specification and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention. *Nautilus*, 134 S. Ct. at 2124. Defendant has failed to prove by clear and convincing evidence that the term “low viscosity” is indefinite. *See, e.g., Apple Inc. v. Samsung Elecs. Co.*, 786 F.3d 983, 1002 (Fed. Cir. 2015) (upholding a claim term “substantially centered” as definite because the patent challenger failed to produce evidence that an ordinarily skilled

artisan would lack reasonable certainty of the claim's scope), *rev'd and remanded on other grounds*.

The term "low-viscosity" appears in asserted claim 23 of the '491 Patent. The Parties do not appear to dispute the meaning of "viscosity." The extrinsic evidence submitted by Plaintiff defines viscosity as "[t]he resistance that a gaseous or liquid system offers to flow when it is subjected to a shear stress. Also known as flow resistance; internal friction"). (*See, e.g.*, Dkt. No. 83-27 at 7.) Thus, the term "viscosity" would be well understood by a person of ordinary skill in the art.

The Parties' dispute is over the term "low." Defendant seeks to impose a numerical precision for this term of degree. However, in this case, "no such numerical precision is required when using such terms of degree." *Exmark Mfg. Co. v. Briggs & Stratton Power Prods. Grp, LLC*, 879 F.3d 1332, 1346 (Fed. Cir. 2018). In fact, "[a]ll that is required is some standard for measuring the term of degree." *Id.* Here, one skilled in the art would understand the bounds of a "low-viscosity fluid" when the term is considered in the context of the intrinsic evidence.

The term "low-viscosity" appears in claim 23 of the 491 Patent. Claim 23 recites "[t]he method of claim 1 wherein in step (a) the polymer-continuous liquid phase is pumped from the surface along with a low-viscosity fluid." The specification describes the "low-viscosity fluid" as a carrier fluid. *See, e.g.*, '491 Patent at Abstract ("Viscous degradable fluid or pellets of degradable polymer may be placed in a wellbore as an internal phase in a low viscosity carrier fluid."). The specification further states that "[w]ater or brine may be used as a carrier fluid." *Id.* at 10:56. Thus, the specification provides a person of ordinary skill in the art is provided with a general guideline and examples of a low-viscosity fluid.

The specification further indicates that a "high-viscosity" fluid has a viscosity that is

"greater than about 0.1 poise." Specifically, the specification states that "methods are needed for placing relatively small amounts of high-viscosity (greater than about 0.1 poise) fracturing fluid in a wellbore near a selected interval of the formation where the fluid is to be injected without incurring the normal high pressure losses in the wellbore as the fracturing fluid." *Id.* at 7:57–62. Accordingly, the Court finds that claim 23, when read in light of the specification, informs those skilled in the art of the scope of the "low-viscosity fluid" limitation with reasonable certainty. Defendant failed to demonstrate by clear and convincing evidence that the claim is indefinite.

3. Court's Construction

For the reasons set forth above, the Court finds that the term **"low-viscosity"** is not indefinite, and will be given its **plain and ordinary meaning.**

E. "solid form"

Disputed Term	Plaintiff's Proposal	Defendant's Proposal
"solid form"	"of definite shape and volume; not liquid or gaseous"	"solid bulk form"

1. The Parties' Positions

The Parties dispute whether the prosecution history indicates that "solid form" should be construed to mean "solid bulk form." Plaintiff argues that "solid form" means the degradable polymer is in solid, not liquid or gaseous, form. (Dkt. No. 84 at 28–29). In support of its argument, Plaintiff notes that the specification refers to degradable polymer in a carrier fluid or slurry as "pellets" of a particular shape and size. (*Id.* at 29) (citing '491 Patent at 8:37–46, 9:20–23, 10:10–12, Fig. 2(a)). Plaintiff further contends that the common meaning of "solid" also supports its construction. (*Id.* at 29) (citing Dkt. Nos. 84-32, 84-30, 84-35, 84-21). Plaintiff argues that Defendant's construction does nothing to give meaning to the words of the claim term, and instead adds an entirely new word to its construction. (*Id.* at 29).

Defendant argues that the patentee's representations to the examiner during prosecution of the '491 Patent confirm that the "solid form" limitation in claim 24 is the same as the "solid bulk form" limitation in claim 1. (Dkt. No. 93 at 29). Defendant contends that the patentee never said anything about a "solid form" to the examiner, and only used the term "solid bulk form." (*Id.* at 29–30) (citing Dkt. Nos. 93-13, 93-14, 93-15). Defendant argues that a person of ordinary skill in the art reading the prosecution history would therefore understand that the starting form of the polymer in claim 24 is the same as in claim 1. (*Id.* at 30).

Plaintiff replies that Defendant's sole argument rests on its assumption that the applicant made an error that the Patent Office failed to catch. (Dkt. No. 100 at 10). Plaintiff argues that the supposed error is not "evident from the face of the patent," and thus cannot be corrected through claim construction before the district court. *Id.* (citing *Grp. One, Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297, 1303 (Fed. Cir. 2005)).

For the following reasons, the Court finds that the term **"solid form"** should be construed mean **"solid bulk form."**

2. Analysis

The term "solid form" appears in asserted claim 24 of the '491 Patent. The prosecution history indicates that "solid form" would be understood to mean "solid bulk form." In the response to the First Office Action, the patentee distinguished the prior art as follows:

> In contrast [to the prior art], Applicant discloses "A polymer phase may be the polymer or a mixture of the polymer and a liquid, which will usually be a carrier fluid. The polymer is present as a bulk phase, i.e., not as a finely divided or disperse material."

(Dkt. No. 93-13 at 2). The patentee further argued that "the polymer-continuous liquid phase of the applicant is formed from the bulk phase of a polymer." (*Id.*) In response to the March 17, 2005 Final Office Action, the patentee amended claim 1 to include "in a solid bulk form," and amended

claim 24 to include "in a solid form." (Dkt. No. 93-14 at 2, 5). Regarding the amendments, the patentee presented the following argument:

> Claims 1 and 33 [issued as claim 24] have now been amended. Neither Harris nor Nimerick teaches or suggests use of a degradable thermoplastic polymer in *solid bulk form*.

(*Id.* at 6) (emphasis added). The patentee's interview with the examiner further clarified that "the use of the term thermoplastic in a bulk form" distinguished his invention. (Dkt. No. 93-15 at 2). Accordingly, a person of ordinary skill in the art would understand that the starting form of the polymer in claim 24 is the same as in claim 1. *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985) ("The prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.").

Plaintiff argues that "[t]he claims, as written and allowed, are presumed to be accurate." (Dkt. No. 84 at 29). However, Plaintiff does not address the prosecution history in its briefing. As discussed, the patentee amended the independent claims and explicitly argued that "[n]either Harris nor Nimerick teaches or suggests use of a degradable thermoplastic polymer *in solid bulk form.*" (93-14 at 6) (emphasis added). By making these arguments, the patentee clearly and unambiguously indicated that "solid form" is the same as "solid bulk form." *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed. Cir. 2005) ("We cannot look at the ordinary meaning of the term . . . in a vacuum. Rather, we must look at the ordinary meaning in the context of the written description and the prosecution history."). The patentee cannot have it both ways. *Southwall Techs. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) ("Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers.").

During the claim construction hearing, Plaintiff argued that the patentee only represented

that claim 1 was amended to add "solid bulk form." Plaintiff's characterization of the prosecution history is misleading. As discussed above, both claim 1 and claim 24 (originally claim 33) were amended, and the patentee argued that the prior art failed to teach or suggest "a degradable thermoplastic in solid bulk form." (Dkt. No. 93-14 at 6). The reason claim 33 was not discussed in the portion of the prosecution history highlighted by Plaintiff is because claim 33 was not subject to the 35 U.S.C. 102(b) rejection. (*Id.*) Notwithstanding, the patentee made the same argument for claims 1 and 33 in responding to the 35 U.S.C. 103(a) rejection. (Dkt. No. 93-14 at 6) ("Claims 1 and 33 have now been amended. Neither Harris nor Nimereck teaches or suggests use of a degradable thermoplastic polymer *in solid bulk form*.") (emphasis added). Accordingly, the argument presented by Plaintiff during the claim construction is unpersuasive.

3. Court's Construction

For the reasons set forth above, the Court construes the term **"solid form"** to mean **"solid bulk form."**

IV. CONCLUSION

The Court adopts the constructions above for the disputed and agreed terms of the Asserted Patents. Furthermore, the Parties should ensure that all testimony that relates to the terms addressed in this Order is constrained by the Court's reasoning. However, in the presence of the jury the Parties should not expressly or implicitly refer to each other's claim construction positions and should not expressly refer to any portion of this Order that is not an actual construction adopted by the Court. The references to the claim construction process should be limited to informing the jury of the constructions adopted by the Court.

So Ordered this

Mar 15, 2018

RODNEY GILSTRAP
UNITED STATES DISTRICT JUDGE