IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

BASF CORPORATION,	§	
	§	
Plaintiff,	§	
	§	
v.	§	**CASE NO. 4:14-CV-2733**
	§	
SNF HOLDING COMPANY, et. al.,	§	
	§	
Defendants.	§	

ORDER

I.

In this patent infringement suit, Plaintiff BASF Corporation claims that Defendants are infringing U.S. Patent No. 5,633,329 ("the '329 patent" or "patent"). Defendants SNF Holding Company, Flopam Inc., Chemtall Inc., SNF SAS, and SNF (China) Flocculant Co., Ltd. deny infringement. The parties have undergone inter partes review before the Patent Trial and Appeal Board (PTAB) and now ask this Court to construe the meaning of the remaining disputed terms in the '329 patent. Pursuant to *Markman v. Westview Instruments, Inc.,* the Court now construes the disputed claim terms as a matter of law. 52 F.3d 967, 976 (Fed. Cir. 1995).

A.

Plaintiff BASF Corporation ("Plaintiff") brings this patent infringement case against Defendants SNF Holding Company ("SNF Holding"), Flopam Inc. ("Flopam"), Chemtall Inc. ("Chemtall"), SNF SAS ("SNF-France"), and SNF (China) Flocculant Co., Ltd. ("SNF-China") (collectively, "Defendants"). (Instrument No. 1). Plaintiff is one of the world's leading chemical companies and the holder of U.S. Patent No. 5,633,329 ("the '329 patent" or "patent"). *Id.* at 1.

This patent protects a process for manufacturing polymers, including polyacrylamides, that are highly absorbant and used in various industries, including but not limited to water treatment, mining, agriculture, and oil/gas recovery. *Id.* at 2.

Defendants operate through a multinational chemical company known as SNF Floerger Group, which is controlled by SPCM SA, a French holding company. *Id.* Defendants manufacture, import, and distribute polyacrylamide products in the United States and abroad, thereby competing with Plaintiff in the polyacrylamide market. *Id.* Plaintiff claims that Defendants' polymer manufacturing processes unlawfully infringe on the '329 patent. *Id.* at 3.

B.

Plaintiff filed this case on September 23, 2014. (Instrument No. 1). On December 16, 2014, Defendants filed an answer. (Instrument No. 14). On January 22, 2015, Defendants filed a motion to stay the case pending inter partes review ("IPR") before the Patent Trial and Appeal Board ("PTAB"). (Instrument No. 28). The Court granted the order to stay on February 25, 2015 but vacated it on March 6, 2015. (Instruments No. 31 and 35).

On April 14, 2015, Defendants filed a motion to transfer the case to the Southern District of Georgia and filed a motion to dismiss. (Instruments No. 37 and 38). Defendants then filed an amended answer on May 14, 2015. (Instrument No. 44). On May 21, 2015, this Court denied Defendants' motion to transfer the case. (Instrument No. 47).

Defendant SNF China was served with process on May 7, 2015. (Instrument No. 62). On June 10, 2015, SNF China filed an answer and motion to transfer the case to the Southern District of Georgia. (Instruments No. 53 and 54). On August 10, 2015, all Defendants filed a renewed motion to stay the lawsuit pending IPR. (Instrument No. 64). While this motion was pending, Plaintiff filed a claim construction brief on September 3, 2015. (Instrument No. 67). On

September 17, 2015, Defendants filed a responsive claim construction brief. (Instrument No. 69). The Court granted Defendants' motion to stay the action pending IPR on October 5, 2015. (Instrument No. 77). The Court also denied without prejudice to re-urging Defendants' motion to dismiss and Defendant SNF China's motion to transfer. (Instrument No. 76).

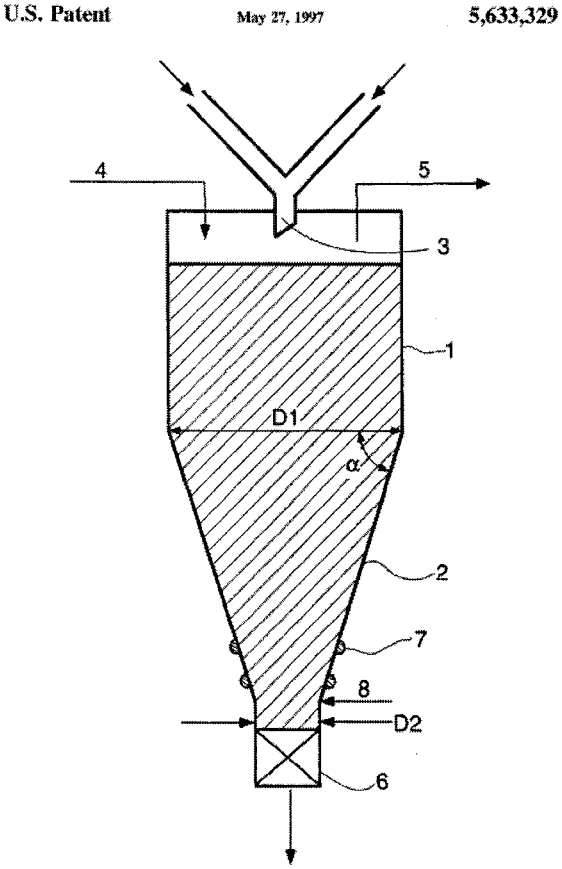
The PTAB rendered a final ruling on the claims before it on August 2, 2016. (Instrument No. 104-3). Thereafter, Plaintiff filed a motion to lift the stay on September 9, 2016. (Instrument No. 83). The Court granted Plaintiff's motion and held a scheduling conference on October 28, 2016, during which a Markman hearing was set for December 22, 2016. On November 1, 2016, Defendants re-urged their motions to dismiss. (Instrument No. 97). On December 5, 2016, Defendant SNF China re-urged its motion to transfer venue to the Southern District of Georgia. (Instrument No. 114). Both motions were denied on December 21, 2016. (Instruments No. 118 and 119).

Plaintiff filed a joint claim construction and prehearing statement on November 8, 2016 and a brief on claim construction on November 18, 2016. (Instruments No. 103 and 104). On November 28, 2016, Defendants filed a responsive claim construction brief. (Instrument No. 110). Plaintiff submitted a joint claim construction chart on December 12, 2016. (Instrument No. 117). The Court held a Markman hearing on December 22, 2016.

C.

In 1997, Plaintiff was awarded the '329 patent, entitled "Preparation of High Molecular Weight Polymers." (Instrument No. 104 at 8). The '329 patent protects a process for removing polymers from a reactor. *Id.* Polymers are chemical compounds composed of chains of monomers that can sometimes be quite viscous and absorbant. *Id.* It can therefore be difficult to remove polymers when they are used in reactors. *Id.*

Prior to the '329 patented invention, most polymers were removed from tubular reactors using gas pressure or a mechanical piston. *Id.* at 9. According to Plaintiff, prior methods failed to remove substantially all polymers from a reactor, resulting in increased costs and inefficiencies. *Id.* The inventors of the '329 patent determined that using a reactor with a *conical* taper in a specific angle range and diameter ratio would allow gas pressure to remove the polymers. *Id.* According to Plaintiff, this "novel design . . . avoids both gas escape and reactor wear problems existing in the prior art, and achieves substantially complete and efficient polymer discharge (i.e., removal) from a polymer reactor." *Id.* The drawing sheet contained in the patent is shown below:



The patent contemplates a tubular reactor **(1)** with a conical taper at the end **(2)**. '329, 2:27. A mixture that will eventually be polymerized enters through the top of the reactor **(3)**. '329, 2:32. According to the patent's description, "[i]n some cases it can be advantageous to use a mixture of inert gas and solvent for pressing out the gelatinous polymer from the reactor." '329, 2:44-46. If used, solvents can be introduced through the inert gas line **(4)** or from the top of the reactor. The pressure in the tubular reactor may be reduced through a feed line **(5)** and a shut-off element is located at the bottom of reactor **(6)**. '329, 2:49 and 2:64. An instrument on the side of the reactor allows radioactive level measurement **(7)**, and additional feed lines can also add inert gas to the reactor **(8)**. '329, 3:1-4. The '329 patent contains seven claims. Only claim 1 is in dispute:

> **1.** A process for preparing high molecular weight polymers, which comprises polymerizing water-soluble, monoethylenically unsaturated monomers and, if desired, crosslinkers which contain at least two nonconjugated, ethylenically unsaturated double bonds in the molecule, and, if desired, water-insoluble monoethylenically unsaturated monomers in aqueous solution in the presence of polymerization initiators in a tubular reactor which has a conical taper at the end, the ratio of the diameter of the reactor (D1) to the diameter at the end of the conical taper of the reactor (D2) being from 2:1 to 25:1 and the angle between D1 at the start of the conical taper and the inner cone wall being >45° and <90°, and removing the gelatinous reaction mixture by injection of an inert gas.

'329, 14:27-40. There are four disputed claim terms: (1) whether the preamble is limiting; (2) the construction of "removing the gelatinous reaction mixture by injection of an inert gas;" (3) a minimum pressure for the patented process, if any; and (4) how much mixture must be discharged from the reactor.

Claim Term/Phrase	Plaintiff's Proposed Construction	Defendants' Proposed Construction
Preamble "A process for preparing high molecular weight polymers, which comprises"	The preamble is not a limitation	The preamble constitutes a limitation
"removing the gelatinous reaction mixture by injection of an inert gas"	"substantially all the gelatinous reaction mixture is discharged from the reactor" by injection of inert gas (requires that inert gas act directly upon the gelatinous reaction mixture, i.e., excludes the use of a piston driven by inert gas)	Removing the gelatinous reaction mixture **only** by injection of inert gas **alone**
"removing the gelatinous reaction mixture by injection"	Not necessary to construe in light of the construction for "removing the gelatinous reaction mixture by injection of an inert gas"	Removing the gelatinous reaction mixture **by injecting a pressure of at least 2 bar**
"removing"	Not necessary to construe in light of the construction for "removing the gelatinous reaction mixture by injection of an inert gas"	Substantially all the gelatinous reaction mixture is discharged from the reactor[, i.e., **more than 99 percent** of the gelatinous reaction mixture is discharged]

II.

Whoever without authority makes, uses, or sells any patented invention within the United States during the term of the patent infringes on the patent. 35 U.S.C. § 271. The determination of whether a claim of a patent has been infringed is a two-step process. First, the Court must determine the meaning and scope of the patent claims. *See Bell Atl. Network Servs., Inc. v. Covad Comms. Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995). This step is commonly referred to as claim construction and is a matter of law "exclusively within the province of the court." *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996). Second, the court must compare the

claims alleged to be infringed to the accused device. *See Bell Atlantic*, 262 F.3d at 1267; *Markman*, 52 F.3d at 976. This second-step is a factual determination reserved for the trier-of-fact. *Cook Biotech, Inc. v. Acell, Inc.*, 460 F.3d 1365, 1373 (Fed Cir. 2006); *Middleton, Inc. v. Minn. Mining & Mfg. Co.*, 311 F.3d 1384, 1387 (Fed. Cir. 2002).

The standards governing claim construction are well established. "It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). The goal of a *Markman* hearing is to arrive at the ordinary and customary meaning of a claim term in the eyes of a person of ordinary skill in the art. *Id.* Proper claim construction demands interpretation of the entire claim in context, not a single element in isolation, *Hockerson-Halberstadt, Inc. v. Converse Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999), because the "court does not interpret claim terms in a vacuum, devoid of the context of the claim as a whole." *Kyocera Wireless Corp. v. ITC*, 545 F.3d 1340, 1347 (Fed. Cir. 2008).

A.

When construing a claim, "the words of a claim are generally given their ordinary and customary meaning." *Phillips*, 415 F.3d at 1312-13; *Kyocera*, 545 F.3d at 1346. The ordinary and customary meaning of claim "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." *Phillips*, 415 F.3d at 1313. The person having ordinary skill in the art "is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field." *Phillips*, 415 F.3d at 1313; *see also Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1299 (Fed. Cir. 1999) ("[W]ords in patent claims are given their ordinary meaning in the usage of the

field of the invention, unless the text of the patent makes clear that a word was used with a special meaning"). Thus, "unless compelled to do otherwise, a court will give a claim term the full range of its ordinary meaning as understood by an artisan of ordinary skill." *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001).

In some cases, "the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips,* 415 F.3d at 1314. Where, however, "the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone," *Teleflex, Inc.*, 299 F.3d at 1325, the court must look to "sources available to the public that show what a person of skill in the art would have understood [the] disputed claim language to mean." *Phillips,* 415 F.3d at 1314. When construing such claims, the Court first looks to intrinsic evidence of claim meaning "*i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history." *Vitronics*, 90 F.3d at 1582. The "intrinsic record in a patent case is the primary tool to supply the context for interpretation of disputed claim terms," because the intrinsic record "provides the technological and temporal context to enable the court to ascertain the meaning of the claim to one of ordinary skill in the art at the time of invention." *V-Formation, Inc. v. Benetton Group SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005); *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1370 (Fed. Cir. 2005).

In reviewing the intrinsic record, the court must first "look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention." *Vitronics Corp. v. Conceptronic, Inc.,* 90 F.3d 1576, 1582 (Fed. Cir. 1996); *Marine Polymer*

Techs., Inc. v. HemCon, Inc., 672 F.3d 1350, 1358 (Fed. Cir. 2012). Given that the "claims define the patent right, naturally the claims themselves provide substantial guidance as to the meaning of particular claim terms." *Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1288 (Fed Cir. 2009). As such, the "context in which a term is used in the asserted claim can be highly instructive." *Phillips*, 415 F.3d at 1314. Thus, claim language and the context in which that language arises can be illustrative and often "provide[s] a firm basis for construing [a challenged] term." *Id.* When reviewing this claim language, the court "must presume that the terms in the claim mean what they say and, unless otherwise compelled, give full effect to the ordinary and accustomed meaning of claim terms." *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999).

B.

The claims and the claim language, of course, do not stand alone. Rather, "they are part of a fully integrated written instrument, consisting principally of a specification that concludes with the claims." *Phillips*, 415 F.3d at 1315. Thus, the patent's specification provides necessary context for understanding claims and "is always highly relevant to the claim construction analysis." *Abbott Labs*, 566 F.3d at 1288. Therefore, the "claims must be read in view of the specification, of which they are a part" because the specification is often "the single best guide to the meaning of a disputed term." *Phillips*, 415 F.3d at 1315; *Metabolite Labs, Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1360 (Fed. Cir. 2004) ("In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention."). For example, the review of the specification may reveal that the patentee has defined its own terms or given a claim term a different meaning than it would otherwise possess. *Phillips*, 415 F.3d at 1316. In such cases, "the inventor's lexicography

governs." *Id.* On other occasions, "the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor." *Id.* In that instance as well, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is dispositive. *Id.* Given the nuance supplied by the specification, the "construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Id.* (quoting *Renishaw PLC v. Marposs Società per Azioni*, 158 F.3d, 1243, 1250 (Fed. Cir. 1998).

C.

The prosecution history is the final interpretative tool in the intrinsic record. "A court 'should also consider the patent's prosecution history, if it is in evidence.'" *Phillips,* 415 F.3d at 1317 (quoting *Markman*, 52 F.3d at 980). The prosecution history includes "all express representations made by or on behalf of the applicant to the examiner to induce a patent grant, or . . . to reissue a patent . . . includ[ing] amendments to the claims and arguments made to convince the examiner that the claimed invention meets the statutory requirements of novelty, utility, and nonobviousness." *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985). The prosecution history "can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Phillips*, 415 F.3d at 1317. Although, the prosecution history may be informative on how the inventor and United States Patent and Trademark Office ("PTO") understood the patent, it is often less useful than the specification because the prosecution history is the fruit of negotiations between the inventor and PTO and, as such, lacks the clarity of the final specification. *Id.*

When consulting the specification or prosecution history to clarify the meaning of claim terms, courts must take care not to import limitations into the claims from the specification. *Abbott Labs*, 566 F.3d at 1288. Thus, for example, "when the specification describes a single embodiment to enable the invention, this court will not limit broader claim language to that single application" unless the patentee has demonstrated that the claims themselves, the specification, or the prosecution history "clearly indicate that the invention encompasses no more than that confined structure or method." *Id.* A patent is not restricted to the preferred embodiments or examples provided in the intrinsic record, but rather the patent is defined by the words of the claims. *See Liebel-Flarsheim Co. v. Medrad, Inc.,* 358 F.3d 898, 906 -10 (Fed. Cir. 2004)*; Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988). Ultimately, "the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim." *Phillips*, 415 F.3d at 1316. Because interpretation is anchored by the inventor's intention, "claims may not be construed by reference to the accused device." *NeoMagic Corp. v. Trident Microsystems, Inc.*, 287 F.3d 1062, 1074 (Fed. Cir. 2002); *Vita-Mix Corp. v. Basic Holding, Inc.*, 581 F.3d 1317, 1324 (Fed. Cir. 2009).

D.

"In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term." *Vitronics*, 90 F.3d at 1582. If the intrinsic evidence is clear, "it is improper to rely on extrinsic evidence in construing the patent claims." *Vitronics*, 90 F.3d at 1582. Where ambiguity persists, the court may "rely on extrinsic evidence, which 'consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.'" *Phillips*, 415 F.3d at 1317 (quoting *Markman*, 52 F.3d at

980). Extrinsic evidence, however, is "in general . . . less reliable than the patent and its prosecution history" because it is not part of the patent and was not created at the time of the patent's prosecution; extrinsic publications may not have been written by or for skilled artisans; and expert reports and testimony created at the time of litigation may suffer from bias not present in intrinsic evidence. *Phillips*, 415 F.3d at 1318.

III.

A.

Defendants contend that the preamble in Claim 1 constitutes a limitation on the patent, whereas Plaintiff asserts that it does not. The preamble reads as follows: "A process for preparing high molecular weight polymers, which comprises . . ." '329, 14:27-28.

Claim Term/Phrase	Plaintiff's Proposed Construction	Defendants' Proposed Construction
Preamble "A process for preparing high molecular weight polymers, which comprises"	The preamble is not a limitation	The preamble constitutes a limitation

Defendants assert that the preamble is limiting because the body of the claim invokes antecedent language from the preamble necessary to interpret the rest of the claim. (Instrument No. 113 at 21). Defendants hinge their argument on the last phrase of claim 1: "removing *the* gelatinous reaction mixture . . ." (emphasis added). According to Defendants, this phrase refers to antecedent language in the preamble, which reads "high molecular weight polymers," without which the phrase at the end of claim 1 would be devoid of meaning. Defendants assert:

> [T]he claim 1 "removing" step recites an ongoing action of "removing *the* gelatinous reaction mixture" (emphasis added), but, the claim contains no prior reference to any or "*a* gelatinous reaction mixture." By using the word "the"

> before the phrase "gelatinous reaction mixture," the inventors clearly were referring to a mixture already described. The only place this antecedent description can be found is in the words of the preamble: "high molecular weight polymer." Without this preamble the phrase "the gelatinous reaction mixture" lacks proper antecedent basis.

(Instrument No. 110 at 16-17). Defendants further contend that the preamble limits the claim because it describes "the essence of the invention" and is recited throughout the specification. *Id.* at 18. Indeed, the phrase "high molecular weight polymers" is present throughout the specification and used in a majority of examples. *See* (Instrument No. 104-2). The title of the patent is "Preparation of High Molecular Weight Polymers." *Id.*

Plaintiff contends that even though the preamble describes or names the overall technology, "the body of claim 1 recites a complete process and deletion of the preamble would not affect the steps recited in the body of the claim." (Instrument No. 104 at 28). According to Plaintiff, the preamble is not necessary to construe the phrase "removing the gelatinous reaction mixture," because that phrase "is understood in general terms as the product of the claimed step of 'polymerizing water-soluble, monoethylenically unsaturated monomers' without reference to molecular weight." *Id.* at 30. Plaintiff then points to several sections of the specification that describe a process for polymerization without referring specifically to "high molecular weight polymers." *See* '329, 2:25-60; 6:20-7:30; 8:45-67. According to Plaintiff, the other references to "high molecular weight polymers" in the specification describe "end products of the claimed process" and therefore do not comprise the "essence of the invention." (Instrument No. 104 at 28).

The Court begins its analysis with the principle that "[g]enerally, the preamble does not limit the claims." *Allen Eng'g Corp. v. Bartell Indus., Inc.,* 299 F.3d 1336, 1346 (Fed. Cir. 2002). A preamble may limit the claims, however, when patentability depends on limitations stated in

the preamble, *see In re Stencel,* 828 F.2d 751, 754 (Fed. Cir. 1987), or when the preamble contributes to the definition of the claimed invention, *see Bell Communications Research, Inc. v. Vitalink Communications Corp.,* 55 F.3d 615, 620 (Fed. Cir. 1995). A preamble is not limiting "where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." *Rowe v. Dror,* 112 F.3d 473, 478 (Fed. Cir. 1997). A preamble may be limiting, however, when "it recites not merely a context in which the invention may be used, but the essence of the invention without which performance of the recited steps is nothing but an academic exercise." *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003).

Whether to treat a preamble as a limitation is a determination "resolved only on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.,* 868 F.2d 1251, 1257 (Fed. Cir. 1989). In general, a preamble limits the invention if it recites essential structure or steps, or if it is "necessary to give life, meaning, and vitality" to the claim. *Pitney Bowes, Inc. v. Hewlett-Packard Co.,* 182 F.3d 1298, 1305 (Fed. Cir. 1999). However, "preamble language merely extolling benefits or features of the claimed invention does not limit the claim scope without clear reliance on those benefits or features as patentably significant." *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.,* 289 F.3d 801, 809 (Fed. Cir. 2002).

In this case, it is evident that the preamble is not necessary to interpret the remainder of the claim. Although "a process for preparing high molecular weight polymers" may encompass the essence of the invention, it does not describe the technology's structure or steps. Rather, the phrase immediately after the preamble articulates in detail the process of polymerization: "polymerizing water-soluble, monoethylenically unsaturated monomers and, if desired,

crosslinkers which contain at least two nonconjugated, ethylenically unsaturated double bonds in the molecule, and, if desired, water-insoluble monoethylenically unsaturated monomers in aqueous solution in the presence of polymerization initiators." '329, 14:27-34. Even without the preamble, this language describes a process that could result in "*the* gelatinous reaction mixture" referred to at the end of the claim. '329, 14:39 (emphasis added). As Plaintiff asserts, the word "the" need not refer to a specific antecedent but rather to the entire reaction mixture to be removed from the reactor. *See Energizer Holdings, Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 1370 (Fed. Cir. 2006) (finding an explicit antecedent to be unnecessary when a "reasonably ascertainable meaning" is present in the claim).

Even if the preamble is not needed on an antecedent basis, Defendants still urge that it is limiting because "a process for preparing high molecular weight polymers" describes "the essence of the invention" and "is stressed throughout the specification." (Instrument No. 110 at 18). The fact that "high molecular weight polymers" are referred to in the preamble and throughout the specification reveals that this type of polymer weighed heavily in the minds of the inventors. However, the repeated utterance of the phrase alone is not dispositive. *See Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1360 (Fed. Cir. 2010) (holding that even though a preamble term appeared in the title, abstract, and six times throughout the speficiation, it merely constituted a "label for the overall invention" and was not limiting).

Ultimately, there is a narrow distinction between limiting preambles that "give life and meaning" to an invention and non-limiting preambles that "merely state a purpose or intended use for the claimed structure." *See Corning Glass Works*, 868 F.2d at 1257. In *General Electric Co. v. Nintendo Co., Ltd.*, the Court of Appeals for the Federal Circuit held that a preamble was limiting where it made clear that the inventors were working on a particular problem and where

it referred to a term absent from the rest of the claim. 179 F.3d 1350, 1361 (Fed. Cir. 1999). The preamble stated in full: "A system for displaying a pattern on a raster scanned display device by mapping bits from a display location in a memory associated with a computer onto the raster." *Id.* Because the language of "mapping bits from a display device" was absent from the rest of the claim, the court found these words to "give life and meaning and provide further positive limitations to the invention claimed." *Id.* at 1362.

In contrast, the Federal Circuit held in *American Medical Systems, Inc. v. Biolitec, Inc.* that a preamble was not limiting. 618 F.3d 1354, 1359 (Fed. Cir. 2010). There, the preamble stated: "A method for photoselective vaporization of tissue, comprising. . ." *Id.* Following a Markman hearing, the district court construed this preamble as a limitation because the repeated use of the phrase "photoselective vaporization" in the specification and claims made it a "fundamental characteristic" of the invention. *Id.* at 1357. Reversing this decision, the Federal Circuit found the preamble to be merely "a descriptive name for the invention that is fully set forth in the bodies of the claims." *Id.* at 1369. The words "photoselective vaporization" did not themselves describe a step or structure of the invention, but simply named a process specified in the claim immediately thereafter. *Id.* According to the Federal Circuit, this "descriptive name" could not be used to limit more specific steps and structures described in the body of the claim itself. *Id.; see also Storage Tech. Corp. v. Cisco Sys., Inc.,* 329 F.3d 823, 831 (Fed. Cir. 2003) (finding a preamble phrase to not be limiting when it provided "a convenient label for the invention as a whole" but did not describe any specific steps).

Similarly, the phrase "a process for preparing high molecular weight polymers" describes the overall technology of the '329 patent without curtailing the scope of the polymerization

process outlined in the body of claim 1. The claim can be interpreted without reference to the preamble and nothing in the specification or prosecution history overcomes this plain language.

Accordingly, the Court finds that the preamble does not constitute a limitation.

B.

The last phrase of Claim 1 is "removing the gelatinous reaction mixture by injection of an inert gas." '329, 14:39-40. Plaintiff contends that this means "substantially all the gelatinous reaction mixture is discharged from the reactor" by injection of inert gas, while Defendants assert that it means "removing the gelatinous reaction mixture *only* by injection of inert gas *alone*" (emphasis added).

Claim Term/Phrase	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
"removing the gelatinous reaction mixture by injection of an inert gas"	"substantially all the gelatinous reaction mixture is discharged from the reactor" by injection of inert gas (requires that inert gas act directly upon the gelatinous reaction mixture, i.e., excludes the use of a piston driven by inert gas)	Removing the gelatinous reaction mixture **only** by injection of inert gas **alone**

Both parties agree that this construction is governed by the PTAB's Final Decision on August 2, 2016, yet they disagree about how to apply that decision. (Instrument No. 104-3). Plaintiff notes that the PTAB made an explicit finding on the meaning of the disputed term:

> In the Institution Decision we construed the term "by injection of an inert gas" to require that the inert gas act directly upon the gelatinous reaction mixture. The parties do not dispute this construction in their subsequent briefing and, upon review of the record as a whole, we discern no reason to modify this construction.

(Instrument No. 104-3 at 7) (internal citations omitted). The PTAB then elaborated on this construction, explaining that "the term 'removing'—in the context of the claim phrase 'removing

the gelatinous reaction mixture by injection of an inert gas'—means 'substantially all the gelatinous reaction mixture is discharged from the reactor.'" *Id.* at 8. At the Markman hearing, Plaintiff claimed that its additional proposed construction—"i.e., excludes the use of a piston driven by inert gas"—was created to assist the Court in distinguishing the patent from the prior art. However, this phrase is absent from the PTAB's construction. *See* (Instrument No. 104-3).

Although Defendants acknowledge the PTAB's construction of this phrase, they point the Court to a passage at the end of the PTAB's decision. (Instrument No. 110 at 11). There the board determined that the '329 patent was patentable by distinguishing it from the prior art. (Instrument No. 104-3 at 20). The board explained:

> Indeed, the use of a discharge aid in the '215 patent reactor [the prior art] tends to support Patent Owner's argument that one of ordinary skill in the art would not have had a reasonable expectation of success in using a conical taper and inert gas pressure *alone* (the combination proposed by petitioner) to remove a sticky, gelatinous product from a reactor.

Id. (emphasis added). Based on this passage, Defendants seek to add the words "only . . . alone" to the language of the claim. (Instrument No. 110 at 11). Plaintiff urges that the '329 patent is not limited to removing the gelatinous reaction mixture "only by injection of inert gas alone." (Instrument No. 104 at 13). Rather, Plaintiff points to numerous examples in the embodiments where a "solvent" or "inert liquid" is also used to remove the gelatinous reaction mixture from the reactor in addition to an inert gas and conical taper. *See* '329, 2:44-48; '329, 7:3-6.

Based on the plain language of the claim and the numerous references to "liquids" and "solvents" in the specification, it is evident that claim 1 is not limited to "removing the gelatinous reaction mixture *only* by injection of inert gas *alone*." The Court's interpretation is governed by the plain language of the claim, in which words "are generally given their ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en

banc). Here, the plain meaning of "removing the gelatinous reaction mixture by injection of an inert gas" does not limit that phrase to *only* injection of an inert gas *alone*. Rather, the claim contemplates removing the gelatinous reaction mixture by both injection of an inert gas *and* a conical taper. The PTAB's analysis acknowledges this by stating that "one of ordinary skill in the art would not have had a reasonable expectation of success in using *a conical taper and inert gas pressure alone*." (Instrument No. 104-3 at 19) (emphasis added). Defendants' proposed construction goes even further, reading out the use of a conical taper to focus on *only* injecting an inert gas *alone*.

While relying on a specific portion of the PTAB decision, Defendants did not address the footnote in that section. During its discussion of how the conical taper and inert gas distinguish the '329 patent, the board stated in footnote 6 that "[a]lthough the '329 patent claims do not appear to preclude the use of a screw pump within the reactor, Petitioner does not make this argument, and this is not the combination of prior art elements proposed in the petition." (Instrument No. 104-3 at 19). According to this footnote, the PTAB did *not* find that the '329 patent was limited to *only* injection of an inert gas *alone*. Rather, the non-exclusive language of the claim leaves open the possibility that liquids, solvents, and even a screw pump can be used in combination with the inert gas and conical taper.

Plaintiff's additional proposed construction that the patent "i.e., excludes the use of a piston driven by inert gas" is unnecessary given its absence of support in the PTAB decision and the direct conflict posed by footnote 6. According to the PTAB, claim 1 does "not appear to preclude the use of a screw pump within the reactor." (Instrument No. 104-3 at 19).

Accordingly, the Court finds that the term "removing the gelatinous reaction mixture by injection of an inert gas" should be given the explicit construction given to it by the PTAB,

namely that "substantially all the gelatinous reaction mixture is discharged from the reactor" by injection of inert gas and requiring "that the inert gas act directly upon the gelatinous reaction mixture."

C.

Defendants contend that the phrase "removing the gelatinous reaction mixture by injection of an inert gas" should be further interpreted to mean "removing the gelatinous reaction mixture *by injecting a pressure of at least 2 bar.*" (Instrument No. 110 at 14) (emphasis added). Plaintiff asserts that no pressure requirement is necessary in light of the previous construction of the entire phrase, "removing the gelatinous reaction mixture by injection of an inert gas." (Instrument No. 104 at 11).

Claim Term/Phrase	Plaintiff's Proposed Construction	Defendants' Proposed Construction
"removing the gelatinous reaction mixture by injection"	Not necessary to construe in light of the construction for "removing the gelatinous reaction mixture by injection of an inert gas"	Removing the gelatinous reaction mixture **by injecting a pressure of at least 2 bar**

The issue of whether the claim requires a minimum pressure of 2 bar was not addressed by the PTAB. However, Defendants look to the patent specification to argue that a minimum pressure is necessary. The specification states:

> In order to discharge the polymer gel from the tubular reactor; an inert gas is injected onto the polymer gel at the top of the tubular reactor and the gel can then be completely pushed out of the reactor at the end of the reactor after opening the shut-off element. If desired, the polymer gel can also be discharged from the reactor by injecting an inert liquid, which is preferably a precipitating agent for the polymer, at the top of the reactor. *In order to discharge the resulting polymer gel from the reactor, a pressure from 2 to 65, preferably from 4 to 25, bar, for example, is necessary.* The pressure data relate both to an inert gas and to an inert liquid which are introduced at the top of the reactor to discharge the polymer gel.

'329, 6:66-67 and '329, 7:1-11 (emphasis added). According to Defendants, the italicized sentence imposes a claim requirement that inert gas be injected into the reactor at a pressure of at least 2 bar. (Instrument No. 110 at 15). Defendants also note that all 14 process examples described in the specification use at least 2 bar of pressure. *Id.* Thus, "[t]o interpret the disputed claim term to include pressures of less than 2 bar would permit the claim to extend beyond what the inventors have described as the disclosed operable range for the invention's claimed improvement." *Id.* at 16.

Plaintiff asserts that the language in the specification should not limit the non-exclusive text of the claim. (Instrument No. 104 at 15). According to Plaintiff, the crux of the invention is the use of inert gas in conjunction with a conical taper to remove the gelatinous reaction mixture from the reactor. *Id.* Because no pressure requirement is stated in the claim, no minimum pressure requirement was intended by the inventors. *Id.* Plaintiff argues that the language in the specification, "a pressure from 2 to 65, preferably from 4 to 25, bar, for example, is necessary," is merely an example or embodiment of the technology, not an absolute requirement. *Id.* at 16. Plaintiff then asserts that the dependent clauses of the sentence can be removed so that it reads that only "a pressure . . . is necessary," not a pressure from 2 to 65 bar. *Id.* at 17. Plaintiff further argues that adding a pressure requirement to claim 1 would violate the doctrines of claim differentiation and surplusage by making claim 6 of the patent redundant. Claim 6 states in full:

> **6.** A process as claimed in claim 1, wherein the polymer gel is removed at the end of the reactor by injection of an inert gas at the entrance of the reactor at a pressure of from 2 to 65 bar.

'329, 14:56-59. Additionally, claim 7 states:

> **7.** A process as claimed in claim 1, wherein the polymer gel is removed at the end of the reactor by injection of an inert gas at the entrance of the reactor at a pressure of from 4 to 25 bar.

'329, 14:60-63. Plaintiff asserts that claims 6 and 7 were designed to encompass the full scope of Claim 1 while adding a pressure requirement. (Instrument No. 104 at 18). If a pressure requirement of at least 2 bar is imported into claim 1, then claim 6 would be redundant. *Id.*

Defendants contend that the pressure requirement is not the only addition to claim 6, which also contains the language, "the polymer gel is removed at the end of the reactor," and has a maximum pressure requirement of 65 bar. (Instrument No. 110 at 19). According to Defendants, this additional language is sufficient to distinguish claim 6 from claim 1. *Id.* at 20. If claim differentiation does apply, Defendants argue that it may be overcome by the plain language of the specification requiring a pressure of at least 2 bar. *Id.*

Under the doctrine of claim differentiation, "[t]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Phillips v. AWH Corp.,* 415 F.3d 1303, 1315 (Fed. Cir. 2005). This principle is not absolute, and the presumption of claim differentiation may be overcome "if the circumstances suggest a different explanation, or if the evidence favoring a different claim construction is strong." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004). Claim differentiation is not a "hard and fast rule of construction," and cannot be relied upon to "broaden claims beyond their correct scope." *Kraft Foods, Inc. v. Int'l Trading Co.,* 203 F.3d 1362, 1368 (Fed. Cir. 2000). However, the doctrine of claim differentiation is "at its strongest" where the limitation that is sought to be "read into" an independent claim already appears in a dependent claim. *Liebel-Flarsheim Co.*, 358 F.3d at 910.

Here, the text of claim 1 stands alone without any pressure requirement. Defendants seek to import nearly the exact language from claim 6 into claim 1, which triggers the presumption of claim differentiation. *See SunRace Roots Enter. Co. v. SRAM Corp.,* 336 F.3d 1298, 1303 (Fed.

Cir. 2003) (finding that claim differentiation applies when the only "meaningful difference" between an independent and dependent claim is the limitation in dispute).

With this presumption triggered, the Court must now determine whether claim differentiation is supplanted by the language in the specification. Plaintiff's textual argument that "a pressure from 2 to 65, preferably from 4 to 25, bar, for example, is necessary" only requires *a* pressure, and not a pressure from 2 to 65, is unpersuasive. However, even if the specification requires a pressure of at least 2 bar, this does not necessarily mean that claim 1 does as well. *See, e.g., Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186–87 (Fed. Cir. 1998) ("[T]here is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification"); *E–Pass Techs., Inc. v. 3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003) ("The problem is to interpret claims 'in view of the specification' without unnecessarily importing limitations from the specification into the claims").

The Court of Appeals for the Federal Circuit considered a similar issue in *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 901 (Fed. Cir. 2004). There, the district court relied on the specification to construe all asserted claims in two patents to require a pressure jacket, even though none of the claims expressly referred to a pressure jacket. *Id.* Because each of the embodiments at issue relied on pressure jackets, the district court found that "the asserted claims do not cover a jacketless injector, even though the asserted claims might be considered broad enough to disclose a jacketless injector when read without reference to the specification." *Id.* Invoking the doctrine of claim differentiation, the Federal Circuit reversed the district court. *Id.* at 910. Even though the embodiment only contemplated the use of a pressure jacket, both patents contained dependent claims expressly requiring pressure jackets. *Id.* Such a direct

contrast between the dependent and independent claims led the court to determine that the doctrine of claim differentiation was not overcome by explicit language in the specification requiring pressure jackets. *See id.*

At the Markman hearing, Defendants pointed the Court to *KX Industries v. PUR Water Purification Products, Inc.*, where the Federal Circuit invoked the doctrine of disclaimer to read a pressure requirement into a disputed claim. 18 Fed.App'x 871, 876-77 (2001). The doctrine of disclaimer posits that "where the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question." *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001). "[A]ny limitation of the meaning attributed to the claim language based on such disclaimer must be shown in the intrinsic record with reasonable clarity and deliberateness." *Northern Telecom Ltd. v. Samsung Electronics Co.*, 215 F.3d 1281, 1294 (Fed. Cir. 2000).

In *KX Industries*, the specification stated that the prior art "describes process conditions well outside the range of compression utilized in the present invention, which would be 400-1000 psi . . . Without such higher pressures, the binder resins are not activated and the novel structures produced by the current invention are not obtained." 18 Fed.App'x at 874. The Federal Circuit held that this language "stated unambiguously and without qualification that a minimum of 400 psi is necessary to activate" the claimed process. *Id.* at 877.

The patent in *KX Industries* did not include dependent claims containing a pressure requirement. *See id.* In other words, the court in that case did not have to consider the doctrine of claim differentation in conjunction with the doctrine of disclaimer. In this case, the language in

the specification, "a pressure from 2 to 65, preferably from 4 to 25, bar, for example, is necessary," could be interpreted as a disclaimer. '329, 7:1-11. However, this language is more ambiguous than that in *KX Industries*, where the inventors stated that "[w]ithout such higher pressures . . . the novel structures produced by the current invention are not obtained." 18 Fed.App'x at 874. The claim language in the '329 patent indicates that the inventors intended to lay exclusive claim to the process described in claim 6, where an inert gas is injected into the reactor at a pressure of at least 2 bar. '329, 14:59. This language contemplates a broader process in which a minimum pressure of 2 bar is not required, which is why claim 6 depends on "[a] process as claimed in claim 1" that does not contain a pressure requirement. '329, 14:56. Even though the specification appears to require a minimum pressure of 2 bar, it is not enough to overcome the presumption of claim differentiation and the plain language of the claims.

Accordingly, the Court construes claim 1 as it is written with no minimum pressure requirement.

D.

Defendant contends that the PTAB construed the term "removing" to mean that "more than 99 percent of the gelatinous reaction mixture [must be] discharged from the reactor." (Instrument No. 110 at 10). Plaintiff disputes this construction.

Claim Term/Phrase	**Plaintiff's Proposed Construction**	**Defendants' Proposed Construction**
"removing"	Not necessary to construe in light of the construction for "removing the gelatinous reaction mixture by injection of an inert gas"	Substantially all the gelatinous reaction mixture is discharged from the reactor[, i.e., **more than 99 percent** of the gelatinous reaction mixture is discharged]

Defendants advocate for this removal reuirement by pointing to a passage from the PTAB Final Decision. (Instrument No. 110 at 9). During inter partes review, Defendants argued that the '329 patent required removal of 90 percent of residual polymers from the reactor. (Instrument No. 104-3 at 10). Rejecting this argument, the PTAB found:

> Contrary to [Defendants'] argument, however, Dr. Carson's testimony indicates that discharge levels 'considerably higher than 90%, probably higher than 95, 98, and 99 percent' (which would necesessarily require that at least 90% of the material be discharged) are required to satisfy the 'removing' limitation. Thus, given that Dr. Carson's testimony is the only evidence bearing on the point, we are not persuaded that [Defendants] direct[] us to sufficient evidence to demonstrate that a 90% discharge level would satisfy the 'removing' limitation in claim 1 of the '329 patent.

(Instrument No. 104-3 at 11). In other words, Defendants argued during inter partes review that the patented technology only needed to remove 90 percent of the gelatinous mixture. After not achieving success on that issue, Defendants now ask this Court to construe the claim to require at least 99 percent of the gelatinous mixture to be removed from the reactor. (Instrument No. 110 at 10). However, the passage that Defendants rely on does not actually construe a 99 percent requirement. Without setting any removal requirement, the PTAB simply rejected Defendants' assertion that the removal could be as low as 90 percent. This does not provide sufficient basis for the Court to read in a removal requirement that is plainly absent from claim 1. With no other evidence in the claim, specification, or prosecution history to support a removal requirement, the plain language of the claim will not be disturbed. *See Phillips v. AWH Corp.,* 415 F.3d 1303, 1315 (Fed. Cir. 2005).

Accordingly, the Court construes claim 1 as it is written with no minimum removal requirement.

IV.

For the reasons stated above, the Court hereby adopts the following definitions for each of the disputed claim terms as follows:

Claim Term/Phrase	Court's Construction
whether the preamble is limiting: "A process for preparing high molecular weight polymers, which comprises"	The preamble is not limiting.
"removing the gelatinous reaction mixture by injection of an inert gas"	"substantially all the gelatinous reaction mixture is discharged from the reactor" by injection of inert gas (requires that inert gas act directly upon the gelatinous reaction mixture)
"removing the gelatinous reaction mixture by injection"	As it is written with no minimum pressure requirement.
"removing"	As it is written with no minimum removal requirement.

The Clerk shall enter this Order and provide a copy to all parties.

SIGNED on this the 6th day of January, 2017.

VANESSA D. GILMORE
UNITED STATES DISTRICT JUDGE