UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

Before the Honorable Thomas B. Pender
Administrative Law Judge

In the Matter of **CERTAIN OPAQUE POLYMERS**	**Inv. No. 337-TA-883**

ORDER NO. 13: CONSTRUING TERMS OF THE ASSERTED PATENTS

(January 2, 2014)

The disputed terms are construed in this Order for purposes of this Investigation. Hereafter, the construction of the claim terms in this Order shall govern discovery and briefing in this Investigation. Terms not in dispute need not be construed. *See Vanderlande Indus. Nederland BV v. Int'l Trade Comm'n*, 366 F.3d 1311, 1323 (Fed. Cir. 2004) (noting that the administrative law judge need only construe disputed claim terms). Any claim terms not discussed herein shall be deemed undisputed and shall be interpreted by the undersigned in accordance with "their ordinary meaning as viewed by one of ordinary skill in the art." *Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1371 (Fed. Cir. 2003), cert. denied, 540 U.S. 1073 (2003).

Table of Abbreviations

Complainant's Initial *Markman* Brief	CIMB
Complainant's Reply *Markman* Brief	CRMB
Complainant's Supplemental *Markman* Brief	CSMB
Respondents' Initial *Markman* Brief	RIMB
Respondents' Reply *Markman* Brief	RRMB
Respondents' Supplemental *Markman* Brief	RSMB
Markman Hearing Transcript	Tr.

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I. INTRODUCTION

The Commission instituted this Investigation on June 18, 2013 to determine whether certain opaque polymers infringe one or more of claims 1–5 of U.S. Patent No. 6,020,435 ("the '435 patent"); claims 1–7 of U.S. Patent No. 6,252,004 ("the '004 patent"); claims 1–8, 10–12, and 14 of U.S. Patent No. 7,435,783 ("the '783 patent"); and claims 1–3 of U.S. Patent No. 7,803,878 ("the '878 patent") and whether an industry in the United States exists, as required by 19 U.S.C. § 1337(a)(2). *See* 78 FR 37571 (June 21, 2013).[1] The Complainants are Rohm and Haas Company, Rohm and Haas Chemicals, LLC, and The Dow Chemical Company (collectively "Dow"). The Respondents are Organik Kimya San. Ve Tic. A.S., Organik Kimya Netherlands B.V., Organik Kimya US, Inc., Turk International, LLC, and Aalborz Chemical, LLC (collectively "Organik").

On September 6, 2013, the parties filed a joint proposed claim construction chart detailing their proposed constructions. On September 17, 2013, the parties filed initial claim construction briefs. On October 18, 2013, the parties filed reply claim construction briefs. On November 19, 2013, a Markman hearing was held in this Investigation.

II. RELEVANT LAW

"An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc) (internal citations omitted), aff'd, 517 U.S. 370 (1996). Claim construction "is a question of law, to be determined by the court."

[1] On November 7, 2013, I issued Order No. 8 as an Initial Determination Granting Dow's motion to amend the complaint and notice of investigation to add an allegation of trade secret misappropriation. On November 21, 2013, Order No. 11 issued granting Dow's motion for partial termination of this investigation as to asserted U.S. Patent Nos. 7,435,783 and 7,803,878. Accordingly, only the '435 and '004 patents remain asserted in this investigation.

Markman v. Westview Instruments, Inc., 517 U.S. 370, 384 (1996). Its purpose is to "elaborat[e] the normally terse claim language in order to understand and explain, but not to change, the scope of the claims." *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000). Thus, "only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy." *Vivid Techs., Inc. v. American Science & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

In claim construction, a court "look[s] to 'those sources available to the public that show what a person in the art would have understood the disputed language to mean.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)). Specifically, it looks first to the intrinsic record, which includes the claims, specification, and prosecution history, and may also consider extrinsic evidence, including expert testimony, dictionaries, and learned treatises. *Id.* at 1317.

"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.'" *Id.* at 1312 (quoting *Innova*, 381 F.3d at 1115). Claim terms "'are generally given their ordinary and customary meaning,'" *id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576 (Fed. Cir. 1996)), that is, what "the term would have [meant] to a person of ordinary skill in the art in question at the time of the invention." *Id.* at 1313 (citing *Innova*, 381 F.3d at 1116). "[T]he claims themselves provide substantial guidance as to the meaning of particular claim terms . . . [because] the context in which a term is used . . . can be highly instructive." *Id.* at 1314.

The claims, however, are "part of a 'fully integrated written instrument.'" *Id.* at 1315 (quoting *Markman*, 52 F.3d at 978). Accordingly, "claims 'must be read in view of the

specification, of which they are a part.'" *Id.* (quoting *Markman*, 52 F.3d at 979). "The specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* (quoting *Vitronics*, 90 F.3d at 1582). Further, the specification governs where it reveals a disclaimer of subject matter or "a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess." *Id.* at 1316. As a general rule, the details of examples or embodiments discussed in the specification are not to be read into the claims as limitations. *Id.* at 1323. In the end, "[t]he construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be . . . the correct construction." *Id.* at 1316 (quoting *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998)).

A court should also "consider the patent's prosecution history, if it is in evidence." *Id.* at 1317 (quoting *Markman*, 52 F.3d at 980). "Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent" during prosecution. *Id.* However, because it "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.*

Finally, courts are "authorized . . . to rely on extrinsic evidence, 'all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.'" *Id.* at 1317 (quoting *Markman*, 52 F.3d at 980). But "while extrinsic evidence 'can shed useful light on the relevant art,' . . . it is 'less significant than the intrinsic record'" for several reasons. *Id.* (quoting *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). First, it was not "created at the time of patent prosecution for the purpose

of explaining the patent's scope and meaning." *Id.* at 1318. Second, it may not have been "written by or for skilled artisans and therefore may not reflect the understanding of a skilled artisan in the field of the patent." *Id.* Third, if prepared for litigation, it "can suffer from bias that is not present in the intrinsic evidence." *Id.* Fourth, "there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question." *Id.* Finally, undue reliance on it could "undermin[e] the public notice function of patents" by yielding an interpretation different from what the intrinsic record suggests to the public. *Id.*

III. THE '435 PATENT

A. Overview

U.S. Patent No. 6,020,435 is titled "Process For Preparing Polymer Core Shell Type Emulsions And Polymers Formed Therefrom." The '435 patent issued on February 1, 2000, to inventors Robert Mitchell Blankenship and James Keith Bardman. The '435 patent is assigned to Rohm and Haas Company. Claim 1 is the only independent claim. Claims 2-5 are dependent claims. The asserted claims read as follows (with the disputed terms highlighted in bold):

1. A process for preparing emulsion polymer particles comprising:

(a) providing an aqueous emulsion of

(i) multi-stage emulsion polymer, comprising a core stage polymer and a shell stage polymer, wherein the core stage polymer comprises, as polymerized units, from 5 to 100 percent by weight, based on the weight of the core stage polymer, of hydrophilic monoethylenically unsaturated monomer, and from 0 to 95 percent by weight, based on the weight of the core stage polymer, of at least one nonionic monoethylenically unsaturated monomer; and wherein the shell stage polymer comprises, as polymerized units, at least 50 percent by weight of nonionic monoethylenically unsaturated monomer;

(ii) monomer at a level of at least 0.5 percent by weight based on the weight of the multi-stage emulsion polymer; and

(iii) swelling agent **under conditions wherein there is no substantial polymerization of the monomer**; and

(b) reducing the level of monomer by at least fifty percent.

2. The process of claim 1 wherein the monomer at a level of at least 0.5 percent by weight based on the weight of the multi-stage emulsion polymer is one or more of the monomers used to prepare the multi-stage emulsion polymer.

3. The process of claim 1 wherein the monomer at a level of at least 0.5 percent by weight based on the weight of the multi-stage emulsion polymer is nonionic monomer.

4. The process of claim 1 wherein the swelling agent is selected from volatile base, fixed base, and combinations thereof.

5. The process of claim 1 wherein the level of monomer is reduced to less than 10,000 ppm based on polymer solids by polymerizing said monomer.

'435 patent at 36:55 – 38:11.

B. Ordinary Skill In The Art

Dow argues that a person with ordinary skill in the art at the time of invention would have possessed (1) at least a Bachelor's degree in polymer chemistry, chemistry, or chemical engineering, and (2) three to five years of experience in the synthesis, production, or analysis of structured latex particles. (CDOCCB at 12 (citing Cunningham Decl. Ex. 5, at ¶ 15).) Organik similarly contends that such a person would have possessed (1) a Bachelor's degree in chemistry, chemical engineering, polymer engineering, or equivalent field, and (2) three to five years of experience in technologies relevant to polymer emulsions. (RIMB at 19 (citing McKenna Decl. Ex. 34, at ¶ 8).)

The parties' definitions of one of ordinary skill in the art for the '435 patent are very similar. However, based on my reading of the patent, the technology tutorial presented by the parties, and the Markman hearing, I find that Organik's more permissive definition to be more

appropriate. In particular, I find Dow's requirement that one of ordinary skill in the art be experienced in latex particles too restrictive.

Accordingly, I find that a person of ordinary skill in the art for the '435 patent would have possessed (1) a Bachelor's degree in chemistry, chemical engineering, polymer chemistry, polymer engineering, or equivalent thereof, and (2) three to five years of experience in technologies relevant to polymer emulsions or structured latex particles.

C. The Disputed Claim Term: "under conditions wherein there is no substantial polymerization of the monomer"

Claim 1 of the '435 patent contains the disputed claim term: "under conditions wherein there is no substantial polymerization of the monomer." '435 patent at 37:8-9. The parties propose the following constructions:

Dow	Organik
the swelling is conducted under conditions wherein there is no substantial polymerization of the monomer	(1) adding one or more polymerization inhibitors, (2) adding one or more reducing agents, (3) waiting for a sufficient period of time from forming the shell stage polymer until there is no longer an appreciable number of free-radicals by virtue of them terminating, (4) cooling the contents of the reactor to limit the reactivity of the free radicals, or combinations thereof, to achieve no appreciable free radical content, as in Examples of the specification, at the time of swelling agent addition.

The parties' dispute with respect to the phrase "under conditions wherein there is no substantial polymerization of the polymer" can be broken down into three separate arguments. The parties argue over: (1) how the "conditions wherein there is no substantial polymerization" are achieved; (2) what level of polymerization constitutes "no substantial polymerization; and (3) when the "conditions wherein there is no substantial polymerization" must be met. I will

address each argument below in turn.

1. How the "conditions wherein there is no substantial polymerization" are achieved

The Parties' Positions

Organik argues that the phrase "conditions wherein there is no substantial polymerization" should be construed to limit the claim scope to only the four means for achieving the conditions that the '435 patent discloses. (RIMB at 21–23.) Organik argues that the patent applicants have disclaimed all other means. (*Id.* at 22.) Specifically, Organik relies on the specification, which provides:

> There are many means for providing that no substantial polymerization of monomer is occurring, including the addition of one or more inhibitors, the addition of one or more reducing agents, waiting for a sufficient period of time until there are no longer an appreciable number of free-radicals by virtue of them terminating, cooling the contents of the reactor to limit the reactivity of the free-radicals, and combinations thereof.

(*Id.* at 21 (citing col. 7, l. 61 – col. 8, l. 1.))

Organik also relies on the prosecution history. Organik argues that, in response to an office action, the patent applicants described the conditions as "critical" to the invention, (*id.* at 21), and introduced the four means with the phrase "*i.e.*" rather than "*e.g.*" in a chart comparing the invention to prior art, indicating that the means were not merely examples, (*id.* at 22–23). According to Organik, this evidence shows that a skilled artisan "would certainly understand that the 'no substantial polymerization' limitation was absolutely critical, and that both the patent and its prosecution history disclose only four ways of achieving this condition." (*Id.* at 22.) On this basis, Organik urges that the limitation should be construed only to include the four means disclosed in the '435 patent.

Dow responds that the plain language of the claim does not limit the claim to the four

means disclosed in the specification. (CRMB at 4.) Dow also cites the same portion of the specification that Organik cites in support of its proposed claim construction, but highlights different words: "There are *many means* for providing [the conditions], *including*. . . ." (*Id.*) Dow argues that these phrases suggest an open-ended list of means for achieving the conditions. (*Id.* at 4–5.) Dow further argues that the applicants' use of "*i.e.*" in prosecution is inconsequential because courts have interpreted "*i.e.*" to mean "*e.g.*" in similar contexts. (CRMB at 5–6 (citing *Dealertrack, Inc. v. Huber*, 674, F.3d, 135, 1326 (Fed. Cir. 2012); *Pfizer, Inc. v. Teva Pharm., USA, Inc.*, 429 F.3d 1364, 1373 (Fed. Cir. 2005); *Certain Dynamic Random Access Memory and NAND Flash Memory Devices and Products Containing Same*, Inv. No. 337-TA-883, Order No. 65 at 14–17 (Aug. 8, 2012)).) For these reasons, Dow argues that Organik fails to prove a "clear and unmistakable" disclaimer. (*Id.* (citing *Sandisk Corp. v. Memorex Prods, Inc.*, 415 F.3d 1278, 1286 (Fed. Cir. 2005)).)

Discussion

Organik's proposed claim construction is based on the argument that the patent applicants disclaimed the full scope of their invention and limited its scope to only the four means disclosed for achieving the "conditions wherein there is no substantial polymerization." A disclaimer of claim scope, however, must be clear and unmistakable. The doctrine of prosecution disclaimer "precludes patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution." *SanDisk*, 415 F.3d at 1286 (citing *Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 220–21 (1940)). It applies "where the patentee has unequivocally disavowed a certain meaning to obtain his patent." *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003); *see also SanDisk Corp. v. Memorex Prods., Inc.*, 415 F.3d 1278, 1286 (Fed. Cir. 2005) (Prosecution disclaimer occurs "[w]hen the patentee makes clear and unmistakable

prosecution arguments limiting the meaning of a claim term in order to overcome a rejection," but not when "a prosecution argument is subject to more than one reasonable interpretation."). I find the evidence relied on by Organik fails to meet this standard.

First, the specification does not support a finding of disclaimer. As pointed out by Dow, the portion of the specification relied on by Organik states that "[t]here are *many means* for providing [the conditions], *including*. . . ." ('435 patent at 7:61-62.) Contrary to Organik's argument, this open-ended phraseology suggests that the listed means in the specification do not constitute a closed group.

Second, the prosecution history does not adequately support a finding of disclaimer. Organik relies on the patent applicants' use of the words "*i.e.*" and "critical" in the prosecution history to show that the applicants unequivocally intended to limit the "conditions wherein there is no substantial polymerization" to the four means disclosed in the specification. However, I find that these portions of prosecution history, when read in context, are subject to one or more reasonable interpretations; they are not clear and unmistakable. In particular, I find unpersuasive Organik's argument that the applicants' use of the word "*i.e.*" means that a limiting definition will follow because both the Federal Circuit and ITC have held in similar circumstances that "*i.e.*" preceded a non-limiting list of examples. Moreover, the very most that can be said of the applicants' use of the word is "*i.e.*" is that it is ambiguous, not clear and unmistakable as the standard requires.

Further, with regard to the applicants' use of the word "critical" in their response to an Office Action rejecting the claims of the patent as anticipated or obvious in light of Kowalski #1, Kowalski #2, Blankenship #1, Blankenship #2, or Park, the context clearly shows the applicants were referring generally to the "conditions where there is no substantial polymerization" as

critical; they did not describe any specific means for achieving said conditions as critical.

In sum, I find that the evidence does not show that Dow has clearly and unmistakably disclaimed means for achieving the "conditions wherein there is no substantial polymerization." Thus, I find that one of ordinary skill in the art would interpret the disputed claim language according to its plain language.

2. What level of polymerization constitutes "no level of polymerization"

The Parties' Positions

Organik argues that "no substantial polymerization" should be construed "no appreciable free radical content." (RIMB at 20.) With regard to the specification, Organik first argues that the specification does not provide any definition of "no substantial polymerization" beyond the link to "no substantial polymerization." (*Id.* at 23.) Organik also argues that the specification distinguishes the invention from prior art on the basis that "in previously known processes, the swelling agent was added to the system while there was still an appreciable free-radical content in the system." (*Id.* at 26 (citing '435 patent at 7:51-55.)) With regard to prosecution history, Organik argues that applicants' labeling of the "conditions wherein there is no substantial polymerization" as "required" during prosecution would suggest the limitation to one skilled in the art. (*Id.* at 24.) Finally, Organik contends that the word "substantial" is indefinite because one of ordinary skill in the art would not be able to understand it. (*See id.* at 21.) In particular, Organik argues that the specification fails to provide a way to determine whether the level of polymerization is "substantial." (*Id.*)

Dow responds by arguing that substituting "appreciable" for "substantial" would not improve the claim's clarity because neither term draws a clear boundary. (CRMB at 9.) Further, Dow also argues Organik has failed to show clear and convincing evidence that the claim

language is indefinite. (*Id.* at 8.) In support, Dow cites several cases stating that the phrase "substantial" is sufficiently clear to one of ordinary skill in context of the specification and the relevant art. (*Id.* (citing *Ecolab, Inc. v. Envirochem, Inc.*, 264 F.3d 1358, 1367 (Fed. Cir. 2001) ("[T]erm 'substantially' is a descriptive term commonly used in patent claims 'to avoid a strict numerical boundary to the specified parameter.'"); *Aventis Pharm., Inc. v. Amino Chemicals, Ltd.*, 715 F.3d 1363, 1377 (Fed. Cir. 2013) (Holding that "substantially" in the patent's context meant "largely but not wholly."); *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1329 (Fed. Cir. 2006) (The "term 'substantial' implies 'approximate,' rather than 'perfect.'"); *Liquid Dynamics Corp. v. Vaughn Co., Inc.*, 355 F.3d 1361, 1368 (Fed. Cir. 2004) ("The meaning of the word 'substantially' is 'largely but not wholly that which is specified.'")).)

Dow further argues that, although the specification provides no techniques for measuring polymerization level to determine whether it is "substantial," several techniques for doing so were known at the time of invention. (CRMB at 10.)

Discussion

Organik argues that the phrase "no substantial polymerization" should be construed as meaning "no appreciable free radical content" because: (1) that is the only description provided in the specification for ascertaining the level of polymerization; (2) that is the language the applicants used in the specification to distinguish the invention from the prior art; and (3) as claimed, the phrase "no substantial polymerization" is indefinite because the relative word "substantial" is unintelligible to a person of ordinary skill in the art. I disagree.

The specification states that when there is "no appreciable free radical content" in the system "no substantial polymerization" will occur. ('435 patent at 7:39–42.) While this rephrasing sheds some light on what is meant by "no substantial polymerization," it is not a

reason, in and of itself, to simply import "no appreciable free radical content" into the claim. More importantly, the purpose of claim construction is to clarify the meaning and/or scope of claim terms, and I see no evidence to suggest that substituting the phrase "no appreciable free radical content" for "no substantial polymerization" does either. Both phrases avoid strict numerical boundaries. Certainly, Organik fails to adequately explain why one phrase is better than the other.

Organic points out that the specification contrasts the claimed invention from the prior art on the basis that the prior art had "substantial polymerization" or an "appreciable" number of free radicals during swelling, but, again, that does not justify importing "appreciable" into the claim. The differences between the '435 patent and the prior art are not made clearer by using "appreciable" instead of "substantial." As mentioned, both terms are relative.

Regarding Organik's indefiniteness argument, I find that the language "no substantial polymerization" is not indefinite under 35 U.S.C. § 112(b). To overcome the presumption of patent validity, a challenger must show by clear and convincing evidence that "a skilled artisan could not discern the boundaries of the claim based on the claim language, the specification, and the prosecution history, as well as her knowledge of the relevant art area." *Halliburton Energy Services, Inc. v. M-I LLC*, 514 F.3d 1244, 1249–50 (Fed. Cir. 2008). "A claim is not indefinite merely because it poses a difficult issue of claim construction." *Exxon Research & Eng'g Co. v. United States*, 265 F.3d 1371, 1375 (Fed. Cir. 2001). Rather, a claim is definite "if the meaning of the claim is discernable, even though . . . the conclusions may be one over which reasonable persons will disagree." *Id.* at 1373.

While it is true that "substantial" is a term of degree, Federal Circuit precedent makes it

clear that does not necessarily render a claim indefinite. *See, e.g.*, *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1359 (Fed. Cir. 2012) ("This court has repeatedly confirmed that relative terms such as 'substantially' do not render patent claims so unclear as to prevent a person of skill in the art from ascertaining the scope of the claim."); *Andrew Corp. v. Gabriel Elecs. Inc.*, 847 F.2d 819, 821 (Fed. Cir. 1988) ("The criticized words ['approach each other,' 'close to,' 'substantially equal,' and 'closely approximate'] are ubiquitous in patent claims. Such usages, when serving reasonably to describe the claimed subject matter to those of skill in the field of the invention, and to distinguish the claimed subject matter from the prior art, have been accepted in patent examination and upheld by the courts."). Here, Organik fails to provide any evidence, much less clear and convincing evidence, that one of ordinary skill in the art would not understand what is being claimed by the language "no substantial polymerization."

The applicants chose to claim their invention using the language "no substantial polymerization." I find that one or ordinary skill in the art would understand the meaning and scope of that phrase. Accordingly, for the reasons above, I find that one of ordinary skill in the art would construe the phrase "no substantial polymerization" to have its plain and ordinary meaning.

3. When the "conditions wherein there is no substantial polymerization" must be met

The Parties' Positions

Organik argues that the claim should be limited so that it requires that the "conditions wherein there is no substantial polymerization" exist at the time swelling begins. (RIMB at 26.) Specifically, Organik argues that the specification distinguishes the invention from prior art on that basis that the prior art involved adding swelling agent "while there was still an appreciable free-radical content in the system." (*Id.* at 27 (citing '435 patent at 5:51–55).) Organik also

points to a preferred embodiment of the invention that requires "waiting for a sufficient period of time until there are (sic) no longer an appreciable number of free-radicals by virtue of them terminating." (*Id.* (citing '435 patent at 7: 64–66).) Organik further notes the specification explains, "When trying to maximize the extent of swelling, it is preferable that one or more swelling agents are added *after* providing that no substantial polymerization of monomer is occurring." (RRMB at 12 (citing the '435 patent at 8:57–60).) Thus, according to Organik, the intrinsic evidence supports its construction requiring no appreciable free-radical content at the time the swelling agent is added. (RIMB at 26.)

Dow argues that the claim's plain language does not include a temporal limitation. (CRMB at 8; Tr. at 105.) Dow further argues that rather than drawing a hard boundary at the time of adding the swelling agent, the specification discloses a swelling step that is considered as a whole: "[s]welling is generally very efficient under conditions of elevated temperature, in the presence of monomer and no substantial polymerization occurring." (*Id.* at 13 (citing '435 patent at 9:3–9); Tr. at 105.) According to Dow, drawing a strict boundary at the time of adding the swelling agent would "defeat the entire purpose of the invention," which was rooted in the discovery that swelling was enhanced in the substantial absence of polymerization. (Tr. at 106.)

Discussion

Organik contends that a strict boundary should be drawn such that when swelling begins there must be no substantial polymerization. I disagree.

First, the claim's plain language simply describes an aqueous polymer emulsion, one component of which is a swelling agent. It does not include a temporal limitation. Thus, including a temporal limitation would significantly diverge from the plain language of the claim.

Further, the specification does not adequately support including a temporal limitation.

While the specification teaches that particle swelling is optimized in absence of polymerization, it accounts for the possibility that, at the precise time swelling beings, there may not be insubstantial polymerization. (*See, e.g.*, '435 patent at 8:57–60 ("When trying to maximize the extent of swelling, it is *preferable* that . . . swelling agents are added after providing that no substantial polymerization . . . is occurring." (emphasis added)). By indicating that it is only a preference to have the swelling agents added after no substantial polymerization is occurring, the applicant makes clear that such is not required.

In addition, because the claim includes no temporal limitation, I decline to adopt Dow's construction, which includes the phrase "the swelling," because it represents the swelling step as a whole. To accept Dow's construction would be to significantly depart from the claim language by introducing a swelling step where none previously existed in the claim. I also note that treating the swelling step as a whole does not preclude the limitation of a hard boundary at the time swelling begins.

For the reasons above, I find that the claim term includes no temporal limitation. Rather, I find the claim language should be construed according to its plain and ordinary meaning, which I find would be sufficiently clear to one of ordinary skill in the art at the time of the invention.

4. Conclusion

I am not persuaded by Organik's arguments that the claims should be limited in the ways it has suggested, namely with respect to how the conditions are achieved, what degree of polymerization is encompassed, and when they are achieved. Likewise, I am not persuaded by Dow's proposed inclusion of the phrase "the swelling" in its proposed construction. Each of these proposed interpretations diverge from plain language of the claim and are not adequately supported by the specification. In addition, I find that the evidence presented is insufficient to

prove that the applicants disclaimed subject matter during prosecution with respect to the means for achieving the "conditions wherein there is no substantial polymerization." Further, I find the claim language is not indefinite. In light of the claim language, the specification and the prosecution history, I find that a person of ordinary skill in the art at the time of the invention would interpret the disputed claim term "under conditions wherein there is no substantial polymerization of the monomer" according to its plain and ordinary meaning.

IV. THE '004 PATENT

A. Overview

U.S. Patent No. 6,252,004 is titled, "Process For Preparing Multi-Stage Polymer Emulsions And Multi-Stage Polymers Formed Therefrom." The application, Appl. No. 09/418,395, was a divisional of Appl. No. 08/974,763, which is now the '435 patent. The '004 patent issued on June 26, 2001, to inventors Robert Mitchell Blankenship and James Keith Bardman. The '004 patent is assigned to Rohm and Haas Company. Claim 1 is the only independent claim. Claims 2-7 are dependent claims. The asserted claims read as follows (with the disputed term highlighted in bold):

1. A process for preparing emulsion polymer particles comprising: (a) providing an aqueous emulsion of (i) multi-stage emulsion polymer, comprising a core stage polymer and a shell stage polymer, wherein the core stage polymer comprises, as polymerized units, from 5 to 100 percent by weight, based on the weight of the core stage polymer, of hydrophilic monoethylenically unsaturated monomer, and from 0 to 95 percent by weight, based on the weight of the core stage polymer, of at least one nonionic monoethylenically unsaturated monomer; and wherein the shell stage polymer comprises, as polymerized units, at least 50 percent by weight of nonionic monoethylenically unsaturated monomer; (b) adding an effective amount of one or more **polymerization inhibitors** or reducing agents to substantially stop any polymerization; (c) providing monomer at a level of at least 0.5 percent by weight based on the weight of the multi-stage emulsion polymer; (d) adding swelling agent; and (e) reducing the level of monomer by at least fifty percent.

2. The process of claim 1 wherein the one or more **polymerization inhibitors** or

reducing agents are added in an amount of from 25 to 5,000 ppm based on polymer solids.

3. The process of claim 1 or claim 2 wherein the one or more **polymerization inhibitors** are selected from the group consisting of N,N-diethylhydroxylamine, N-nitrosodiphenylamine, 2,4-dinitrophenylhydrazine, p-phenylenediamine, phenothiazine, alloocimene, triethyl phosphite, 4-nitrosophenol, 2-nitrophenol, p-aminophenol, 4-hydroxy TEMPO, hydroquinone, p-methoxyhydroquinone, tert-butyl-p-hydroquinone, 2,5-di-tert-butyl-p-hydroquinone, 1,4-naphthalenediol, 4-tert butyl catechol, copper sulfate, copper nitrate, cresol and phenol.

4. The process of claim 1 wherein the monomer at a level of at least 0.5 percent by weight based on the weight of the multi-stage emulsion polymer is one or more of the monomers used to prepare the multi-stage emulsion polymer.

5. The process of claim 1 wherein the monomer at a level of at least 0.5 percent by weight based on the weight of the multi-stage emulsion polymer is nonionic monomer.

6. The process of claim 1 wherein the swelling agent is selected from volatile base, fixed base, and combinations thereof.

7. The process of claim 1 wherein the level of monomer is reduced to less than 10,000 ppm based on polymer solids by polymerizing said monomer.

(the '004 patent at 37:14 – 38:32.)

B. Ordinary Skill In The Art

Dow argues that a person with ordinary skill in the art at the time of invention would have possessed (1) at least a Bachelor's degree in polymer chemistry, chemistry, or chemical engineering, and (2) three to five years of experience in the synthesis, production, or analysis of structured latex particles. (CIMB at 12 (citing Cunningham Decl., Ex. 5 at ¶ 15).) Organik similarly contends that such a person would have possessed (1) a Bachelor's degree in chemistry, chemical engineering, polymer engineering, or equivalent field, and (2) three to five years of experience in technologies relevant to polymer emulsions. (RIMB at 19 (citing McKenna Decl., Ex. 34 at ¶ 8).)

The parties' definitions of one of ordinary skill in the art for the '435 patent are very

similar. However, based on my reading of the patent, the technology tutorial presented by the parties, and the Markman hearing, I find Organik's more permissive definition more appropriate. In particular, I find Dow's requirement that one of ordinary skill in the art be experienced in latex particles too restrictive.

Accordingly, I find that a person of ordinary skill in the art for the '435 patent would have possessed (1) a Bachelor's degree in chemistry, chemical engineering, polymer chemistry, polymer engineering, or equivalent thereof, and (2) three to five years of technologies relevant to polymer emulsions or structured latex particles.

C. The Disputed Claim Term: "polymerization inhibitor"

The parties dispute the proper construction of the term "polymerization inhibitor." (the '004 patent at 7:32–33.) The parties propose the following constructions:

Dow	Organik
A substance that inhibits polymerization	A compound that reacts with radicals to form other species and completely halts polymerization until it is consumed

I note at the outset the disputed phrase's contextual language: "A process for preparing emulsion polymer particles comprising . . . adding an effective amount of one or more polymerization inhibitors or reducing agents to substantially stop any polymerization." (the '004 patent at 7:32–33.) Although the phrase at issue is "polymerization inhibitor," Organik represents that the dispute centers around "the significance of the phrase 'substantially stop.'" (RIMB at 29.) Thus, it appears Organik's proposed construction of "polymerization inhibitors" requires completely halting polymerization irrespective of the amount of inhibitor added, the combination of monomer inhibitor, and other relevant factors.

The Parties' Positions

Organik argues that Dow's construction, which mirrors the claim language itself, should be rejected because "any substance that inhibits polymerization, no matter how small, meets this limitation." (RIMB at 29.) Organik also emphasizes that, in the "Reasons for Allowance," the examiner stated that the invention was patentable because it combined core-shell polymers "with inhibitors to *stop any polymerization*," and the applicants did not contest this statement. (*Id.*) Additionally, Organik notes that during prosecution, applicants cited a treatise that explained that "polymerization inhibitors operate by reacting with radicals to form other species." (*Id.* at 30.) Organik further argues that the treatise elsewhere contrasted polymerization inhibitors from retarders in that inhibitors "stop every radical [such that] polymerization is completely halted," whereas retarders "stop only a portion of the radicals." (*Id.*)

Dow responds by emphasizing the context of the disputed phrase. (CRMB at 15.) Specifically, Dow argues, as the contextual language makes clear, that the effectiveness of the inhibitor depends on several factors, including the amount of inhibitor added. (*Id.* at 17.) Dow argues that Organik's proposed construction fails to account for the relationship between the effectiveness of the inhibitor and the amount of the inhibitor used. (*See id.* at 17.) Further, Dow argues the contextual language states that the purpose of the inhibitor is to "substantially stop," not "completely halt," polymerization. (*Id.* at 15.) Dow urges that the treatise explaining the difference between inhibitors and retarders is an inadequate basis to include the limitation "completely halt" when the specification is silent on that point. (CIMB at 18.)

Discussion

I reject Organik's proposed construction because it ignores the plain language of the claim in at least two ways. First, the claim explicitly acknowledges the dependency of inhibitor

effectiveness on inhibitor concentration by referring to "an effective amount" of polymerization inhibitor. Yet Organik's proposed construction ignores that relationship and seeks to define inhibitor in an absolute sense as completely halting polymerization. In other words, it assumes that an inhibitor *by definition* completely halts polymerization, although an effective amount and other conditions are required for a complete halting.

Second, the claim language expressly states that the inhibitor acts to "substantially stop" polymerization, not completely halt it. To find that polymerization inhibitors by definition completely halt polymerization would impermissibly render the phrase "substantially stop" superfluous.

In addition, the specification does not support Organik's argument that polymerization inhibitors "completely halt" polymerization. The specification simply does not contain the phrase "completely halt" anywhere therein. Nor does the prosecution history adequately support Organik's proposed construction. Organik's reliance on the treatise, which contrasts inhibitors and retarders on the basis that inhibitors alone completely halt polymerization, is inconsequential because that contrast does not do away with the basic dependency of inhibitor effectiveness on inhibitor concentration. In addition, the examiner's stated reason for allowance cannot trump the plain language of the claim, which is that the inhibitor *substantially stop* polymerization. The examiner did not require that the word "substantially" be removed from the claim.

In conclusion, a plain reading of the claim as a whole belies Organik's proposed construction in several ways. Furthermore, the specification and prosecution history do not contain sufficient evidence supporting an interpretation that polymerization inhibitors "completely halt" polymerization irrespective of concentration. For these reasons, I conclude

that one of ordinary skill in the art at the time of the invention would interpret "polymerization inhibitor" according to its plain and ordinary meaning.

SO ORDERED.

Thomas B. Pender
Administrative Law Judge

IN THE MATTER OF CERTAIN OPAQUE POLYMERS **337-TA-883**

CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached PUBLIC ORDER NO. 13 has been served upon the following parties via first class mail and air mail where necessary on JAN 0 2 2014

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U.S. International Trade Commission
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Washington, DC 20436

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IN THE MATTER OF CERTAIN OPAQUE POLYMERS **337-TA-883**

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