

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

AGROFRESH INC., )  
)  
Plaintiff, )  
)  
v. ) C.A. No. 16-662 (MN) (SRF)  
)  
MIRTECH, INC., NAZIR MIR, ESSENTIV )  
LLC, DECCO U.S. POST-HARVEST, INC., )  
CEREXAGRI, INC. d/b/a DECCO POST- )  
HARVEST, and UPL, LTD., )  
)  
Defendants. )

**MEMORANDUM OPINION**

Chad S.C. Stover, Regina S.E. Murphy, BARNES & THORNBURG LLP, Wilmington, DE; Robert D. MacGill, Lynn C. Tyler, Deborah Pollack-Milgate, Joseph T. Wendt, Jessica M. Lindemann, Barnes & Thornburg LLP, Indianapolis, IN – Attorney for Plaintiff

Frederick L. Cottrell, III, Jeffrey L. Moyer, Nicole K. Pedi, RICHARDS, LAYTON & FINGER, Wilmington, DE; Gerald F. Ivey, John M. Williamson, Anand K. Sharma, Rajeev Gupta, Aidan C. Skoyles, Karthik Kumar, Daniel F. Roland, FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP, Washington, DC – Attorneys for Defendant

January 2, 2019  
Wilmington, Delaware

  
NOREIKA, U.S. DISTRICT JUDGE:

On October 18, 2018, Magistrate Judge Fallon issued a Report and Recommendation (D.I. 247, “the Report”) recommending that the Court adopt constructions for disputed claim terms in U.S. Patent Nos. 6,017,849, 6,313,068 and 9,394,216 (“the ’216 Patent”). On November 1, 2018, Plaintiff AgroFresh Inc. (“Plaintiff” or “AgroFresh”) objected to the Report only with respect to the recommended constructions of terms found in the ’216 Patent – “1-MCP Impermeable” / “1-MCP Impermeable Package” and “1-MCP is adsorbed into the MCPN.” (See D.I. 260). On November 15, 2018, Defendants Decco U.S. Post Harvest, Inc., Cerexagri, Inc., Essentiv LLC, and UPL Ltd. (collectively, “Defendants”) responded to Plaintiff’s objections. (See D.I. 286).

The Court has reviewed the Report, Plaintiff’s objections and Defendant’s responses thereto, and has considered *de novo* the original claim construction briefing and supporting documents, as well as the transcript of the claim construction hearing regarding the objected to terms. See, e.g., *St. Clair Intellectual Prop. Consultants, Inc. v. Matsushita Elec. Indus. Co.*, 691 F. Supp. 2d 538, 541-42 (D. Del. 2010); 28 U.S.C. § 636(b)(1); Fed. R. Civ. P. 72(b)(3). For the reasons set forth below, Plaintiff’s objections (D.I. 260) to the Report are OVERRULED-IN-PART and SUSTAINED-IN-PART. The recommended constructions of “1-MCP Impermeable” / “1-MCP Impermeable Package” are ADOPTED and the recommended construction of “1-MCP is adsorbed into the MCPN” is MODIFIED as discussed below.

## **I. LEGAL STANDARDS**

“[T]he ultimate question of the proper construction of the patent [is] a question of law,” although subsidiary fact-finding is sometimes necessary. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837-38 (2015). “[T]he words of a claim are generally given their ordinary and

customary meaning [which is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc) (internal citations and quotation marks omitted). Although “the claims themselves provide substantial guidance as to the meaning of particular claim terms,” the context of the surrounding words of the claim also must be considered. *Id.* at 1314. “[T]he ordinary meaning of a claim term is its meaning to the ordinary artisan after reading the entire patent.” *Id.* at 1321 (internal quotation marks omitted).

The patent specification “is always highly relevant to the claim construction analysis . . . [as] it is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). It is also possible that “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316. “Even when the specification describes only a single embodiment, [however,] the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using words or expressions of manifest exclusion or restriction.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1372 (Fed. Cir. 2014) (internal quotation marks omitted) (quoting *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004)).

In addition to the specification, a court “should also consider the patent’s prosecution history, if it is in evidence.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). The prosecution history, which is “intrinsic evidence, . . . consists of the complete record of the proceedings before the PTO [Patent and Trademark Office] and includes the prior art cited during the examination of the patent.” *Phillips*, 415 F.3d

at 1317. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Id.*

In some cases, courts “will need to look beyond the patent’s intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.” *Teva*, 135 S. Ct. at 841. Extrinsic evidence “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Markman*, 52 F.3d at 980. Expert testimony can be useful “to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” *Phillips*, 415 F.3d at 1318. Nonetheless, courts must not lose sight of the fact that “expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence.” *Id.* Overall, although extrinsic evidence “may be useful to the court,” it is “less reliable” than intrinsic evidence, and its consideration “is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” *Id.* at 1318-19. Where the intrinsic record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. *See Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1308 (Fed. Cir. 1999) (citing *Vitronics*, 90 F.3d at 1583).

## II. DISCUSSION

### A. “1-MCP Impermeable” / “1-MCP Impermeable Package”

<p><b>AgroFresh’s proposed construction</b></p> <p>1-MCP impermeable means “the 1-MCP will not pass for at least three days within a detection limit of 10 ppb”</p> <p>1-MCP impermeable package means “a package (including filters) through which 1-MCP will not pass for at least three days within a detection limit of 10 ppb”</p>
<p><b>Defendants’ proposed construction</b></p> <p>1-MCP impermeable means “having low or no gas permeability to 1-MCP”</p> <p>1-MCP impermeable package means “a package having low or no gas permeability to 1-MCP”</p>
<p><b>The Report’s construction</b></p> <p>1-MCP impermeable means “having low or no gas permeability to 1-MCP”</p> <p>1-MCP impermeable package means “a package having low or no gas permeability to 1-MCP”</p>
<p><b>The Court’s construction</b></p> <p>1-MCP impermeable means “having low or no gas permeability to 1-MCP”</p> <p>1-MCP impermeable package means “a package having low or no gas permeability to 1-MCP”</p>

AgroFresh objects to the Report’s construction of the “impermeable” terms, asserting that “it ignores the specification’s definition of ‘permeable,’ disregards other relevant teachings from the specification, and gives undue weight to extrinsic evidence.” (D.I. 260 at 3). As to the “definition” of “permeable,” AgroFresh points to the following language:

Permeance or permeation: The degree to which a material admits a flow or matter or transmits another substance. Permeable materials are those through which gases or liquids may pass. Permeable materials exhibit different permeances – e.g., permeation rates – for different chemical species.

(*Id.*; see also ’216 Patent at 3:66-4:5). As drafted, the paragraph defines “permeance or permeation” and explains that “[p]ermeable materials are those through which gases or liquids may pass.” (’216 Patent at 3:66-4:4). Contrary to AgroFresh’s objection, the Report does not ignore this part of the specification. The Report specifically considered this paragraph and found

that it did not define the claim term “impermeable.” (See D.I. 247 at 14 (“The ’216 patent specification does not define ‘impermeable.’”)). The Court agrees that the portion of the specification relied upon by AgroFresh does not define “impermeable.” See *GE Lighting Solutions, LLC v. Agilight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) (“The standards for finding lexicography and disavowal are exacting. To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term, and clearly express an intent to define the term.”).

AgroFresh nonetheless argues that “impermeable” is the opposite of “permeable” and thus asserts that the Report’s recommended construction cannot be correct because it “expressly encompasses the specification’s definition of ‘permeable.’” (D.I. 260 at 3). Although superficially appealing, AgroFresh’s argument ignores the fact that its own proposed construction for a “1-MCP impermeable package” could also include materials that fall under the specification’s description of “permeable materials.” (*Id.* at 6-7). For example, the “definition” of “permeable materials” on which AgroFresh relies is not limited to particular detection limits or set timeframes. Table 9 (on which AgroFresh also relies) indicates that MCPN-G capsule retention decreases by day 4. To the extent that AgroFresh relates retention to permeability (or impermeability), MCPN-G capsules would meet AgroFresh’s construction of “impermeable” (which stops the analysis at day 3), while also encompassing the broader definition of “permeable” in the specification (which does not set a timeframe for the analysis) because by day 4 (and thereafter) 1-MCP may pass.<sup>1</sup>

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<sup>1</sup> There is a dispute as to whether the “retention” of 1-MCP in Example 17 and Table 9 relates to transmission of 1-MCP through packaging. But as AgroFresh acknowledges, its own expert, Dr. Walton, “agreed, consistent with [AgroFresh’s] position, that less than 100% retention is not impermeability.” (D.I. 260 at 10). Even accepting AgroFresh’s position that Example 17 and Table 9 relate to permeability, MCPN-G capsules have less than 100% retention at day 4 and thus would be permeable beginning at least as of that day.

Next, AgroFresh claims that the Report errs in relying on embodiments and language in the specification to support the recommended construction because the embodiments referenced are not “preferred” embodiments and need not be covered by the claims. (D.I. 260 at 4-5). Specifically, AgroFresh argues that the Report erred in “relying on the disclosure of ‘the permeation of a low percentage of 1-MCP through the impermeable packaging, particularly in embodiments such as capsules with no coatings or fillers’” (*id.* at 4), particularly given that “the specification *never* refers to capsules with low gas permeability as a preferred embodiment” (*id.* at 5 (emphasis in original)).

The Court disagrees. The intrinsic evidence as a whole supports Defendants’ proposed construction – *i.e.*, that impermeable means low or no gas permeability. After discussing the formation of MCPN-1-MCP complexes, the specification states that “[i]n various embodiments . . . the MCPN-1-MCP complexes may be formed into tablets or other unit formulations for ease of use.” (’216 Patent at 5:66-6:2). Other packaging described for the complexes includes “capsules” and “sachets.” (*Id.* at 7:50-8:33). The claims also describe such packaging. For example, claim 7, depending from independent claim 6, recites that the “1-MCP impermeable package” can be a “capsule, flexible pouch or rigid container.” Claim 14, depending from independent claim 13, recites that the “1-MCP impermeable package” comprises a “sachet.” The purpose of the packaging is described as “dispers[ing] the 1-MCP, minimiz[ing] the loss of 1-MCP, and achiev[ing] at least 90% active ingredient retention in the formation” during storage. (*Id.* at 6:49-57). The packaging also releases the 1-MCP complex when needed. (*See id.* at 7:18-49, Examples 8-9; *see also id.* at 6:55 (noting that “heat, pressure or aqueous based solution such as water is used for releasing the active ingredient”)). With respect to capsule embodiments, the specification states that “[i]n various embodiments, suitable capsules also may include any

material that has low gas permeability properties.” (*Id.* at 6:33-38). The specification provides examples of low gas permeability materials for capsules, “such as nylon or PVOH-based capsules, or any other starch or gum-based capsules (*e.g.*, carboxymethylcellulose).” (*Id.* at 6:36-38; *see also* D.I. 206-1 ¶¶ 44-45). Similarly, with respect to the sachet embodiments that may have polymeric film forming their exterior, the specification states that they may have a 1-MCP transmission rate of up to 150,000 cm<sup>3</sup> per day across a film surface area of 1 m<sup>2</sup>. (’216 Patent at 8:2-15; *see also* D.I. 206-1 ¶ 46).

AgroFresh does not dispute that the specification includes descriptions of capsules and sachets made of material with low gas permeability for use in the invention but, as noted above, argues these are not “preferred” and need not be covered by the claims. The Court, however, notes that the specification contains no other descriptions of the capsules and sachets of the invention – *i.e.*, there are no descriptions of packaging as “impermeable” or any mention of what distinguishes “impermeable” packaging from that described in the specification.<sup>2</sup> AgroFresh’s citation to Example 17 and Table 9 does not change the analysis. (*See* D.I. 260 at 6-7). There is nothing in Example 17 or Table 9 that describes any of the embodiments therein (let alone the three picked by AgroFresh) as impermeable to 1-MCP. Indeed, the only use of the word “impermeable” in connection with Example 17 and Table 9 is the statement that “[g]lycerol by itself is impermeable to 1-MCP.” (’216 Patent at 19:33-34). Thus, read in its entirety, the specification supports construing “1-MCP impermeable” as “having low or no gas permeability to 1-MCP.”

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<sup>2</sup> Despite AgroFresh’s assertion that the claimed “package” must include fillers, the ’216 Patent makes clear that fillers are not necessary. For example, with respect to the tablet embodiments, the patent states that “[i]n *some* embodiments, the tablets or other unit formulations *may* include other filler materials.” (’216 Patent at 6:10-11 (emphasis added)). As to the capsule embodiments, it states that “[i]n various embodiments, the capsules *may* include fillers inside the capsules, hereinafter referred to as capsule fillers.” (*Id.* at 6:49-50 (emphasis added)).

Finally, AgroFresh proposes to replace the word “impermeable” in the claims with the phrase: “will not pass for at least three days within a detection limit of 10 ppb.” The ’216 Patent does not describe this as a definition of impermeable, the inventor’s or otherwise. Indeed, as discussed above, the example from which that language is taken only uses the word “impermeable” in referring to glycerol – not the capsules tested. The Report concluded that limiting the claims to the three embodiments in Example 17 (and Table 9) would improperly read embodiments into the claims. (See D.I. 247 at 16). The Court agrees that there is no basis to limit the claims to these three embodiments in the specification. See, e.g., *Hill-Rom Servs.*, 755 F.3d at 1371-72; *Liebel-Flarsheim*, 358 F.3d at 904.

**B. “the 1-MCP is adsorbed into the MCPN”**

<p><b>AgroFresh’s proposed construction</b>  “the 1-MCP molecule has been introduced into the MCPN, for example through an adsorption vessel or with the aid of continuous agitation, so as to form a multitude of complexes”</p>
<p><b>Defendants’ proposed construction</b>  “the 1-MCP molecules are adhered to a surface of the MCPN”</p>
<p><b>The Report’s construction</b>  “the 1-MCP molecules are adhered to a surface of the MCPN”</p>
<p><b>The Court’s construction</b>  “the 1-MCP molecules are adhered to a surface of one or more pores in the MCPN”</p>

AgroFresh objects to the Report’s construction of “1-MCP is adsorbed into the MCPN,” asserting that the Report “expressly ignores essential claim language, disregards relevant teachings from the specification, and gives undue weight to extrinsic evidence.” (D.I. 260 at 8). The Court agrees in part.

The claim language “adsorbed” invokes the concept of adsorption, which is defined in the specification to mean the “[a]dhesion of atoms, ion, or molecules from a gas, liquid, or dissolved

solid to a surface.” (’216 Patent at 3:13-14). Thus, the Court agrees with the recommended construction to the extent that 1-MCP molecules are adhered to a surface of the MCPN. And the Court rejects AgroFresh’s language that substitutes the word “introduced” for “adsorbed” and provides non-limiting examples of how the “introduction” may be accomplished. The issue, however, is the effect of the word “into” in the claim language “into the MCPN.”

As an initial matter, the Court agrees with AgroFresh that the term “into” in the claims should be given meaning. (See D.I. 260 at 8-10). “Claims are interpreted with an eye toward giving effect to all terms in the claim.” *Enzo Biochem, Inc. v. Applera Corp.*, 780 F.3d 1149, 1154 (Fed. Cir. 2015) (quoting *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006)). Thus, “[a] claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.” *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (citing *Elekta Instrument S.A. v. O.U.R. Sci. Int’l, Inc.*, 214 F.3d 1302, 1307 (Fed. Cir. 2000)).

As to the meaning of “into” in context of the claimed invention, the specification indicates that the “1-MCP adsorbed into the MCPN” means 1-MCP is adsorbed “into the pores” of the MCPN, not simply adhered to any surface of the MCPN. (’216 Patent at 4:29-32 (“Embodiments herein provide metal coordination polymeric networks (MCPNs) that may be used to adsorb materials such as cyclopropene compounds/derivatives *into the pores* in their structures.” (emphasis added))). Consistent with this, the specification uses “into” to mean “inside.” For example, in describing prior art strategies for forming 1-MCP complexes, the patent states that 1-MCP substrate “selectively fits into the encapsulation site” after noting that “a single 1-MCP *molecule enters the internal cavity* of the cyclodextrin torus . . . .” (*Id.* at 4:64-5:1 (emphasis added); *see also id.* at 9:62 (chemicals loaded “into” a glass vial); *id.* at 11:58 (1-MCP introduced “into” the encapsulation jar); *id.* at 16:54-55 (1-MCP introduced “into” the adsorption jar); *id.* at

18:66 (mixture dispensed “into” each capsule)). The intrinsic evidence thus suggests that the claim language “into” connotes adsorption to a surface inside the MCPN.

The extrinsic evidence submitted by Defendants further supports a construction that requires at least some of the 1-MCP to be adsorbed into the pores – *i.e.*, the inner surfaces of the complex – in connection with the invention. As Defendants’ expert, Dr. Dincă, noted in explaining how metal-organic frameworks (“MOFs”) work, MOFs are “the most porous materials known in the world” and “[t]he surface area of the ’216 patent’s claimed MOFs is overwhelmingly internal, and so most of the adhesion takes place at the inner surfaces of the MOF.” (D.I. 219-1 ¶ 28; *see also id.* ¶ 27 (“[T]he surface in the ’216 patent’s claimed MCPN’s is overwhelmingly internal, so the 1-MCP molecules adhere primarily to the inner surfaces of the MCPN.”)).

The Court finds that the construction recommended in the Report is correct insofar as it does not exclude complexes in which some 1-MCP is adsorbed to external surfaces. But to the extent the recommended construction allows for complexes having 1-MCP adsorbed *only* to an external surface and not “into” the complex, that construction fails to give meaning to the word “into” in the claim language. Thus, the construction is modified as stated above to clarify that at least some of the 1-MCP is adhered to a surface of one or more pores in the MCPN.

### **C. The Remaining Constructions in the Report**

The Report recommended constructions for the terms “molecular encapsulation agent,” “complex,” “adsorption complex,” and “metal coordination polymer network” or “MCPN.” (*See, e.g.*, D.I. 247 at 16). Neither party has objected to the recommended constructions of these terms and finding no clear error in its analysis, the Court adopts the Report as to these constructions.

An appropriate order will issue setting forth the Court’s constructions.

IN THE UNITED STATES DISTRICT COURT  
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AGROFRESH INC., )  
)  
Plaintiff, )  
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MIRTECH, INC., NAZIR MIR, ESSENTIV )  
LLC, DECCO U.S. POST-HARVEST, INC., )  
CEREXAGRI, INC. d/b/a DECCO POST- )  
HARVEST, and UPL, LTD., )  
)  
Defendants. )

**ORDER**

At Wilmington this 2nd day of January 2019:

For the reasons set forth in the Memorandum Opinion issued this date,

IT IS HEREBY ORDERED that:

1. Plaintiff's objections (D.I. 260) to Magistrate Judge Fallon's Claim Construction Report and Recommendation (D.I. 247) are **OVERRULED-IN-PART** and **SUSTAINED-IN-PART**.

2. The disputed claim terms shall have the following constructions:

**1-MCP impermeable** means "having low or no gas permeability to 1-MCP;"

**1-MCP impermeable package** means "a package having low or no gas permeability to 1-MCP;"

**the 1-MCP is adsorbed into the MCPN** means "the 1-MCP molecules are adhered to a surface of one or more pores in the MCPN;"

**molecular encapsulation agent** means "a compound that has a lock and key structure similar to an enzyme whereby a substrate selectively fits into the encapsulation site;"

**complex** – no separate claim construction required;

**adsorption complex** means “a complex of a cyclopropene compound and a metal coordination polymer network (MCPN);” and

**metal coordination polymer network** or **MCPN** means “a porous metal containing composition that is capable of adsorbing 1-MCP.”

A handwritten signature in cursive script, reading "Maryellen Noreika". The signature is written in black ink and is positioned above a horizontal line.

The Honorable Maryellen Noreika  
United States District Judge