

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

GEMAK TRUST,

Plaintiff,

v.

RECKITT BENCKISER LLC,

Defendant.

Civil Action No. 18-1855-RGA

GEMAK TRUST,

Plaintiff,

v.

CHURCH & DWIGHT CO., INC.,

Defendant.

Civil Action No. 18-1854-RGA

MEMORANDUM OPINION

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July 27, 2020

/s/ Richard G. Andrews

ANDREWS, UNITED STATES DISTRICT JUDGE:

Before the Court is the issue of claim construction of various terms in U.S. Patent Nos 6,787,514 (“the ‘514 patent”) and 6,486,116 (“the ‘116 patent”). I have considered the parties’ Joint Claim Construction Brief and two letters from the parties. (D.I. 51; D.I. 57; D.I. 58).¹ I heard oral argument on June 23, 2020.

I. BACKGROUND

The ‘514 and ‘116 patents are directed to a product used in detergents. The invention claimed in the ‘514 patent “stabilize[s] percarbonate in water-soluble film packaging,” and the ‘116 patent describes a phosphate-free formulation of the product. (D.I. 51 at 1; D.I. 44-2 ex. A; D.I. 44-3 ex. B).

II. LEGAL STANDARDS

“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) (internal quotation marks omitted). “[T]here is no magic formula or catechism for conducting claim construction.’ Instead, the court is free to attach the appropriate weight to appropriate sources ‘in light of the statutes and policies that inform patent law.’” *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (quoting *Phillips*, 415 F.3d at 1324) (alteration in original). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). Of these sources, “the specification is always highly relevant to the claim construction

¹ The Court will refer to docket items for Civil Action No. 18-1854-RGA without the corresponding docket item numbers for Civil Action No. 18-1855-RGA.

analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Phillips*, 415 F.3d at 1315 (internal quotation marks omitted).

“[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.” *Id.* at 1312–13 (citations and internal quotation marks omitted). “[T]he ordinary meaning of a claim term is its meaning to [an] ordinary artisan after reading the entire patent.” *Id.* at 1321 (internal quotation marks omitted). “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.” *Id.* at 1314.

When a court relies solely upon the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court’s construction is a determination of law. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015). The court may also make factual findings based upon consideration of 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 1317–19 (internal quotation marks omitted). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. (*Id.*). Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. (*Id.*).

“A claim construction is persuasive, not because it follows a certain rule, but because it defines terms in the context of the whole patent.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998). It follows that “a claim interpretation that would exclude

the inventor’s device is rarely the correct interpretation.” *Osram GmbH v. Int’l Trade Comm’n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (citation and internal quotation marks omitted).

III. CONSTRUCTION OF UNDISPUTED TERMS

In their Joint Claim Construction Brief the parties agreed to construe “compressed into a tablet format” in claim 13 of the ’116 patent as “compressed into solid briquettes.” (D.I. 51 at 78-79). The parties affirmed this view during oral argument and the Court adopted this construction. (D.I. 59 at 107:18-25, 108:1-2).

IV. CONSTRUCTION OF DISPUTED TERMS

During oral argument I adopted the following constructions:

Claim Term	Construction
“granulated percarbonate compound” (’514 patent claims 1, 8); “granulated percarbonate” (’116 patent claim 1)	Plain meaning.
“for use in detergent products storable in PVA film packaging” (’514 patent claim 1)	Preamble is limiting; plain meaning.
“is capable of being stored in a water-soluble PVA film packaging for at least nine months” (’116 patent claim 1)	Plain meaning.
“does not include a zeolite, a perborate or a phosphate” (’116 patent claim 1)	"does not include any zeolite, perborate, or phosphate"

I reserved judgment on the following terms: “a blend encapsulating the percarbonate” (’514 patent claims 1, 8); “a blend which encapsulates the percarbonate” (’116 patent claim 1); and “a phosphate” (’116 patent claim 1).

A. **“a blend encapsulating the percarbonate” (’514 patent claims 1, 8); “a blend which encapsulates the percarbonate” (’116 patent claim 1).**

During oral argument Plaintiff and Defendants agreed to construe encapsulate as “enclosing and surrounding the percarbonate.” (D.I. 59 at 34:14-18, 35:21-24, 36:2-4). The Court will adopt that construction. For the term “a blend” the Court will adopt the following

construction: “one or more physically intermingled components.” The reasoning for the Court’s construction is detailed below. The Court adopts the following full construction for the claim terms:

Claim Term	Construction
“a blend encapsulating the percarbonate” (’514 patent claims 1, 8)	“physically intermingled components enclosing and surrounding the percarbonate”
“a blend which encapsulates the percarbonate” (’116 patent claim 1)	“physically intermingled components which enclose and surround the percarbonate”

1. Background of the ‘514 and ‘116 patents.

Sodium percarbonate is a bleaching agent used in detergent products. (D.I. 44-2 ex. A 1:29-30; D.I. 44-3 ex. B 1:12-13, 1:22-23). Sodium percarbonate is unstable when “combined with components of a high moisture content.” (D.I. 44-2 ex. A 1:30-32; D.I. 44-3 ex. B 1:22-25). The invention ensures the percarbonate is stable in a water-soluble film that can be stored for at least nine months. (D.I. 44-2 ex. A 4:45-48; D.I. 44-3 ex. B, 1:54-57). This “fully built detergent” system can then be used in commercial laundries, domestic dishwashers, and domestic washing machines. (D.I. 44-2 ex. A 1:26-27, 1:45-48; D.I. 44-3 ex. B 1:20; 1:44-45). The percarbonate is stabilized when surrounded by a blend of chemical components. (D.I. 44-2 ex. A 1:50-52, 2:17-19; D.I. 44-3 ex. B 1:47-50, 1:55-56).

In the specification of the ‘514 patent the inventor indicates the preferred embodiment of the chemical blend surrounding the percarbonate is sulphate, carboxymethyl cellulose and a nonionic surfactant. (D.I. 44-2 ex. A 1:53-54). The ‘116 patent describes the blend as a combination of sulphate, carboxymethyl cellulose, and a nonionic surfactant with the ideal embodiment consisting of sodium sulphate, carboxymethyl cellulose, and a nonionic surfactant. (D.I. 44-3 ex. B 1:49-51, 1:58-59). Both the ‘514 and ‘116 patents describe a “powder/liquid

blend” that encapsulates the percarbonate to form a “dust free granule of a diameter not less than 150 microns.” (D.I. 44-2 ex. A 4:35-37, 4:62-64; D.I. 44-3 ex. B 4:26-28, 4: 54-56).

2. The parties’ proposed constructions.

Plaintiff’s proposed construction is “a mixture of substances.” (D.I. 51 at 6). Plaintiff argues that the specifications indicate that inventor used “a blend” in a way that is consistent with the “broadest understanding of ‘mixture.’” (D.I. 51 at 7). Plaintiff directs the Court to a 1996 publication of the “Cambridge International Dictionary of English,” which defines “blend” as the verb “to mix or combine together,” and to the 1997 edition of a textbook on powder mixing where mixture is described as a synonym for blend. (D.I. 51 at 7 n.5, 27; D.I. 52-3 ex. 1-B at 134; D.I. 54-1 ex. 13-O at 2). The textbook defines mixture as “the product of the physical intermingling of more than one finely divided component when those components retain their physical identity.” (D.I. 54-1 ex. 13-O at 2). Plaintiff also argues that Defendants’ construction reads limitations into the term that are not supported by any intrinsic evidence presented to the Court. (D.I. 51 at 7-9).

Defendants’ proposed construction is a “uniform, permanent combination of chemical ingredients resulting in an entirely different combination with its own unique properties.” (D.I. 51 at 6). Defendants argue the specifications of both patents are consistent with Defendants’ construction of “a blend,” and that the inventor disavowed the terms “mixture” and “mixed” during patent prosecution. (D.I. 51 at 14-15). Defendants argue that the percarbonate must be encapsulated by a barrier to moisture that is both uniform and permanent to prevent moisture from reaching the percarbonate. (D.I. 51 at 14-15). Defendants also base their construction on three pieces of extrinsic evidence: a chemical dictionary and two web articles. (D.I. 51 at 14-15).

3. Defendants’ construction.

Defendants argue that Plaintiff's proposed construction cannot be correct because the inventor disavowed "mixture" and "mixed" during the prosecution of the '514 patent. (D.I. 51 at 14). The Court cannot agree with this conclusion. The doctrine of prosecution disclaimer requires a "clear and unmistakable" disavowal. *Mass. Inst. of Tech. v. Shire Pharm., Inc.*, 839 F.3d 1111, 1119 (Fed. Cir. 2016) (quoting *3M Innovative Proprs. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1325 (Fed. Cir. 2013)). During the prosecution of the '514 patent the inventor asserted that the prior art did not teach or suggest the encapsulation of percarbonate. (D.I. 44-4 ex. C at JA-064-065, JA-068). There was no disavowal of the words "mixture" or "mixed" in the exchange, only the inventor's assertion that the mixing process described in prior art did not necessarily teach encapsulation.

Defendants' second argument is that "mixture" and "blend" have different meanings to a person of skill in the art, an argument they support with extrinsic evidence.² (D.I. 51 at 14). Two pieces of this evidence were published after the claimed invention, one of which was written by a "technical copywriter and marketer" and the other of which has no author listed; the third has no listed publication date. (D.I. 53-3 ex. 3; D.I. 53-5 ex. 5; D.I. 53-4 ex. 4 respectively). In arriving at the proper construction, the Court must "accord a claim the meaning it would have to a person of ordinary skill in the art at the time of the invention." *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004). The Court attaches little weight to

² Defendants' construction is derived from a synthesis of three pieces of extrinsic evidence that Defendants use to characterize "a blend" as "a uniform, permanent combination of chemical ingredients resulting in an entirely different combination with its own unique properties." (D.I. 51 at 6). Blending is described as "a process which combines different ingredients and [the] result obtained is the chemical compound with its unique properties." (D.I. 53-3 ex. 3 at 1). Blending results in "a chemical compound with its own unique properties." (D.I. 53-4 ex. 4 at 2). "This chemical will normally be permanently blended and cannot be separated back into its original components." (D.I. 53-4 ex. 4 at 2). Blend is "[a] uniform combination of two or more materials." (D.I. 53-5 ex. 5 at 168).

Defendants' extrinsic evidence. Defendants have given the Court no indication that the extrinsic evidence was applicable at the time of the effective filing date for the '514 and '116 patents.³ (D.I. 44-2 ex. A at JA-002; D.I. 44-3 ex. B at JA-010).

Defendants' last argument rests on the assertion that their construction is necessitated by the purpose of the invention — to prevent percarbonate from reacting with moisture.⁴ (D.I. 51 at 15). The Court does not find that Defendants construction necessarily follows from the stated purpose of the invention. The consequence of adopting Defendants' construction would be to read numerous limitations into the term “a blend.” These limitations are: “uniform;” “permanent;” “entirely different combination;” and “with its own unique properties.” (D.I. 51 at 6). These limitations are not consistent with the specifications or claims of the '514 or '116 patents. (D.I. 44-2 ex. A; D.I. 44-3 ex. B). For example, there is nothing in either of the patents' specifications or prosecution history to suggest that a person of ordinary skill in the art would understand “a blend” to mean a product that is “permanent” or one “with its own unique properties” or that it results in an “entirely different combination.” (D.I. 51 at 6). These limitations are based on Defendants' extrinsic evidence which is not contemporaneous with the patents' effective filing dates. *Supra* n.2. Finally, importing a uniformity requirement into “a blend” makes the term more ambiguous, not less. Defining a blend as uniform would require the Court to define what uniformity means, but there is no intrinsic evidence or extrinsic evidence that would support the Court's construction. The degree of uniformity — or homogeneity — is a function of “the scale of scrutiny with which one examines the mixture.” (D.I. 54-1 ex. 13-O at 45). For example, a

³ During oral argument, Plaintiff asserted that the effective filing date for the '514 patent was 1997 and 1998 for the '116 patent. (D.I. 59 at 9:8-9, 10:23-11:2). The foreign priority dates in the two patents correspond to Plaintiff's assertions. (D.I. 44-2 ex. A at JA-002; D.I. 44-3 ex. B at JA-010).

⁴ Defendants use a leaky roof analogy to buttress their argument. (D.I. 51 at 15).

cake batter may seem uniform from three feet away, but close examination may reveal that the batter's constituent ingredients are not evenly dispersed. Because Defendants' construction is not supported by intrinsic or extrinsic evidence, the Court declines to adopt it.

4. Plaintiff's construction.

Plaintiff's construction — which essentially substitutes the word “mixture” for “blend” — is no more viable than Defendants' construction. The Court cannot conclude that substituting the word mixture for blend provides more clarity when Plaintiff asserts that the two words are essentially synonymous. (D.I. 51 at 7 n.5, 27; D.I. 52-3 ex. 1-B at 134; D.I. 54-1 ex. 13-O at 2). The Court will not substitute “a mixture” for “a blend” in light of the principle that “[t]he 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.” *Phillips*, 415 F.3d at 1316 (quoting *Renishaw PLC*, 158 F.3d 1250).

5. The Court's construction.

The Court does not adopt the plain meaning of the term “a blend” as this construction would not resolve the dispute between the parties. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008). The intrinsic evidence for the '514 and '116 patents does not shed light on the proper construction of the “a blend,” but the extrinsic evidence, namely the textbook on the principles of powder mixing, does provide the Court with a definition.⁵ (D.I. 54-1 ex. 13-O at 2). In the textbook a mixture is defined as “the product of the physical

⁵ The textbook was published in 1997, one year before and the same year as the effective filing dates of the '116 and '514 patents, respectively. (D.I. 54-1 ex. 13-O; D.I. 44-2 ex. A at JA-002; D.I. 44-3 ex. B at JA-010). The Court affords this definition more weight because it is specific to the relevant art and is more contemporaneous with the patent filings. The other definitions provided to the Court were either much later than the patent filings or from a much more general-purpose dictionary.

intermingling of more than one finely divided component[s] when those components retain their physical identity.” (D.I. 54-1 ex. 13-O at 2). If “blend” and “mixture” are synonyms, then through a simple syllogism “a blend” can be defined as “the product of the physical intermingling of more than one finely divided component[s] when those components retain their physical identity.” The Court will not adopt the phrases “finely divided” or “when those components retain their physical identity” because a construction that includes these phrases would import limitations into the term that are not supported by the language of the patents. (D.I. 44-2 ex. A; D.I. 44-3 ex. B). The Court will adopt the following construction for the term “a blend:” “physically intermingled components.”

B. “a phosphate” (’116 patent claim 1).

The claimed invention describes a phosphate-free detergent formulation to reduce the detrimental environmental effects of detergents. (D.I. 44-3 ex. B at 1:37-40, 1:43-45). In the specification of the ’116 patent the inventor characterizes “a phosphate” as a compound that causes negative environmental effects, promotes solubilization, aids detergency, and is used in detergent. (*Id.* at 1:37-40). The parties agree that the purpose of the phosphate-free formulation disclosed in the ’116 patent was environmental preservation, but disagree about the scope of phosphorous-containing compounds that are encompassed by the term “a phosphate.” (D.I. 51 at 65-66, 69). The Court will construe “a phosphate” as “sodium tripolyphosphate and sodium pyrophosphate.” The reasoning for the Court’s decision is detailed below.

1. The parties’ proposed constructions.

Plaintiff’s proposed construction of “a phosphate” is “a salt of phosphoric acid.” (D.I. 51 at 65). The ’116 patent’s specification describes “a phosphate” as a compound that is used in detergent, causes negative environmental effects, and promotes solubilization and detergency.

(D.I. 44-3 ex. B at 1:37-40). Plaintiff argues that a skilled artisan would know salts of phosphoric acid are the only phosphate-containing compounds that meet these criteria. (D.I. 51 at 66). According to Plaintiff's expert, a person of ordinary skill in the art would know salts of phosphoric acid contain the chemical sub-structures that mediate solubilization and detergency and result in negative environmental effects. (D.I. 51 at 65-66). Plaintiff also argues Defendants' construction is too broad in that it would encompass compounds that would never be used in detergents, such as organophosphates, as well as phosphorus-containing compounds that would be used in a "phosphate-free" detergent formulation. (D.I. 51 at 66, 73).

Defendants argue that "a phosphate" should be construed broadly to include "an anion, salt, functional group or ester derived from an acid containing phosphorous." (D.I. 51 at 65). Defendants arrive at their construction through the use of four general dictionaries and one technical dictionary. (D.I. 51 at 67-68). Defendants argue that Plaintiff uses the specification to improperly limit the scope of the claim term "a phosphate." (D.I. 51 at 69). Defendants also refer to a 2006 research article in the *Journal of Business Chemistry* and a 2002 E.U. environmental report that describe how elemental phosphorous causes negative environmental effects. (D.I. 51 at 68). Defendants then argue that because elemental phosphorus — the source of environmental harm — can be found in any compound containing phosphorous it is improper to limit the construction of "a phosphate" to a salt of phosphoric acid. (D.I. 51 at 69, 71).

2. Defendants' construction.

Defendants argue that the specification should not be used to limit the construction of "a phosphate." (D.I. 51 at 69). Defendants also argue that that the inventor contemplated any compound containing phosphorous because the specification refers to environmental damage caused by detergents with phosphates. (D.I. 51 at 68-69). These two positions are in tension. If

the environmental impact of phosphates can be used to arrive at a proper construction, surely the other characteristics of “a phosphate” — a compound used in detergent that promotes solubilization and aids detergency — can also be used. (D.I. 44-3 ex. B at 1:37-40).

“[T]he specification is ‘the single best guide to the meaning of a disputed term.’” *Phillips*, 415 F.3d at 1321 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). While the Court must avoid the danger of “reading limitations from the specifications into the claims,” the Court’s construction of the claim term must also “be consistent with the specification.” *See Phillips*, 415 F.3d at 1316, 1321 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996)). The Court attaches little weight to the extrinsic evidence Defendants use to arrive at their construction — five dictionaries, with publication dates ranging from 2007 to 2020. (D.I. 51 at 67-68; D.I. 53-5 ex. 5; D.I. 53-6 ex. 6; D.I. 53-7 ex. 7; D.I. 53-8 ex. 8; D.I. 53-9 ex. 9). Even if the Court were to determine Defendants’ definition is one that a skilled artisan would have at the time of the patent’s effective filing date the Court must still determine “how the specification implicitly limits that definition” in order to avoid “transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context” (D.I. 44-3 ex. B at JA-010); *Phillips*, 415 F.3d at 1321. For the aforementioned reasons, the Court declines to adopt Defendants’ construction.

3. Plaintiff’s construction.

Plaintiff’s construction of “a phosphate” is “a salt of phosphoric acid.” (D.I. 51 at 65). Plaintiff arrives at this construction by way of its expert. (D.I. 51 at 65-66). The Court should disregard “conclusory, unsupported assertions by experts.” *Phillips*, 415 F.3d at 1318. Plaintiff’s expert report cites several technical manuals, but the expert largely relies on an inorganic chemistry textbook — published in 1972 — and two chapters of a technical encyclopedia — published in

2019 — to support his construction. (D.I. 52-8 ex. 2 at 5-7 ¶¶ 20-25; D.I. 52-11 ex. 2-C at 1; D.I. 52-12 ex. 2-D; D.I. 52-23 ex. 2-O at 1). These two publication dates are well before and well after the effective filing date of the ‘116 patent. (D.I. 44-3 ex. B at JA-010). The 2019 publication does support Plaintiff’s expert’s construction, but the passages cited in the 1972 publication do not clearly define “a phosphate” as “a salt of phosphoric acid.” (D.I. 52-11 ex. 2-C at 1-2; D.I. 52-12 ex. 2-D at 396-397). The Court sees no reason why Plaintiff’s 2019 document should be given any more weight than Defendants’ extrinsic evidence that was published after 1998. This leaves the Court with the 1972 textbook, which does clearly not state that “a phosphate” is a salt of phosphoric acid. (D.I. 52-12 ex. 2-D).

4. The Court’s construction.

After finding a majority of the parties’ extrinsic evidence to be irrelevant, the Court is left with the ‘116 patent; a 2002 E.U. Environment Directorate Report describing the impact of phosphates and alternative detergent builders on the environment; and a 1998 publication on the properties of detergent ingredients. (D.I. 44-3 ex. B ; D.I. 53-11 ex. 11; D.I. 52-10 ex. 2-B). The characteristics of “a phosphate” described in the patent specification — namely a compound used in detergent, which has negative environmental impacts, and promotes solubilization and detergency — provide guidance as to the most relevant types of extrinsic evidence. (D.I. 44-3 ex. B at 1:37-40). The ‘116 patent also claims a foreign priority date of July 10, 1998 in Great Britain, and the specification refers to “[f]orthcoming European legislation” which suggests the E.U. is a relevant geographical area. (D.I. 44-3 ex. B at JA-010). In light of the priority date, the industry, and the European focus, the Court independently identified documents written between 1989-1999 that pertained to the types of phosphorous-containing compounds that were in detergents sold in the E.U., the environmental harm caused by these compounds, and E.U. regulations related to these

compounds. The Court then asked the parties to submit letters describing how these pieces of evidence did or did not support their respective constructions. (D.I. 56). Each party submitted a letter. (D.I. 57; D.I. 58).

The Court asked the parties to review seven documents. The ones with the most relevance are a 1998 version of the E.U. Detergents Ingredients Database (DID); a European Community Commission Decision on May 28, 1999 establishing criteria for dishwasher detergents to be awarded an “eco-label;” and a European Economic Community Commission recommendation from September 13, 1989 outlining suggested labeling requirements for detergents and cleaning products. (D.I. 57-3 ex. C; D.I. 57-5 ex. E; D.I. 57-6 ex. F). All three of these documents distinguish “phosphates” from other phosphorous-containing compounds.⁶ (D.I. 57-3 ex. C at 2-3; D.I. 57-5 ex. E at § 2.3; D.I. 57-6 ex. F at art. 2.1). These distinctions clearly establish that during 1998, for the purposes of detergent labeling in the E.U., “a phosphate” referred to a subset of phosphorous-containing compounds rather than all phosphorous-containing compounds.

These documents help the Court identify what a phosphate is not, but the Court must also identify what a phosphate is.⁷ According to the ‘116 patent, “a phosphate” is a compound used in detergent, which has negative environmental impacts, and promotes solubilization and detergency.

⁶The 1999 Community Commission Decision contains a scoring and calculation system that separates phosphates from non-biodegradable organic compounds. (D.I. 57-5 ex. E at § 2.1). The Commission Decision refers the reader to the E.U. Detergents Ingredients Database (DID) for a list of detergent ingredients, and both phosphates and other compounds containing phosphorous are separately listed in the DID. (D.I. 57-5 ex. E at § 2.3; D.I. 57-3 ex. C at 2-4). In the DID phosphates are categorized as inorganic, soluble builders while phosphonates and phosphate esters are categorized as non-biodegradable organic compounds. (D.I. 57-3 ex. C at 2-4). The European Economic Community Commission recommendation also lists phosphates and phosphonates as separate ingredients for the purposes of detergent labeling. (D.I. 57-6 ex. F at art. 2.1).

⁷A phosphate is not a phosphonate or a phosphate ester. *See supra* note 6.

(D.I. 44-3 ex. B at 1:37-40). Phosphates were used as “builders” in detergent formulations.⁸ (D.I. 52-10 ex. 2-B at 4). Builders reduce water hardness, create the conditions for optimal soil removal, prevent soil redeposition, and serve as an alkaline buffer. (D.I. 52-10 ex. 2-B at 4). Builders also facilitate solubilization of detergent components.⁹ (D.I. 53-11 ex. 11 at 12 § 2.2.1). Sodium tripolyphosphate (STPP) and sodium pyrophosphate were the only builders used in detergents until the early 1980s when they were gradually replaced by non-phosphate-based builders.¹⁰ (D.I. 52-10 ex. 2-B at 4). The 1998 edition of the DID only includes STPP, the main type of phosphate-based builder used in European detergents in 1998, not sodium pyrophosphate.¹¹ (D.I. 57-3 ex. 3 at 2; D.I. 53-11 ex. 11 at 13; D.I. 57-5 ex. E at § 2.1). The 1999 Community Commission Decision used STPP as a stand-in for all phosphates, which suggests European regulators were primarily concerned with STPP and not sodium pyrophosphate. (D.I. 57-5 ex. E §2.1 n.1). According to the 2002 E.U. Environment Directorate Report, STPP was responsible for 50% of the bioavailable phosphorous in municipal wastewater. (D.I. 53-11 ex. 11 at 1). Excess bioavailable phosphorous led to negative environmental impacts that prompted limitations and outright bans on STPP in detergent products. (D.I. 53-11 ex. 11 at 1; D.I. 52-10 ex. 2-B at 4).

⁸ Sodium tripolyphosphate is referred to as a type of builder in the 1998 E.U. Detergents Ingredients Database. (D.I. 57-3 ex. 3 at 2).

⁹ These functions collectively promote solubilization and detergency.

¹⁰ In Europe, between the mid-1980s and the early 1990s, sodium tripolyphosphate was gradually replaced by Zeolite A — which does not contain phosphorous. (D.I. 53-11 ex. 11 at 2). Sodium tripolyphosphate and sodium pyrophosphate were not replaced with other phosphate-based builders because the purpose of the substitute builders was to reduce the amount of phosphorous released into the environment. (D.I. 52-10 ex. 2-B at 4; D.I. 53-11 ex. 11 at 6-7).

¹¹ The 1998 E.U. Detergents Ingredients Database specifically refers to sodium tripolyphosphate, and does not include any other phosphates in the section of the ingredients list devoted to detergent builders. (D.I. 57-3 ex. C at 2-3).

Collectively, these facts support the assertion that STPP promoted solubilization and detergency, was in European detergents, caused environmental harm, and was the subject of European legislation that limited its use in detergents. The Court finds that the weight of the intrinsic and extrinsic evidence supports the construction “sodium tripolyphosphate and sodium pyrophosphate.” While European regulators were primarily concerned with STPP, they did not explicitly state that STPP was the only phosphate-based builder used in European detergent formulations. The Court will not limit the construction of “a phosphate” to “sodium tripolyphosphate” alone and includes “sodium pyrophosphate” with the understanding that sodium pyrophosphate was the only other phosphate-based builder used in detergents during the relevant time period. (D.I. 52-10 ex. 2-B at 4). This construction is consistent with the specification of the ‘116 patent, and the extrinsic evidence from the relevant industry, time period, and geographical area. Collectively this evidence demonstrates how “a phosphate” would be understood by a skilled artisan reading the ‘116 patent in 1998.

V. CONCLUSION

The Court adopts the following constructions:

Claim Term	Construction
“a blend encapsulating the percarbonate” (’514 patent claims 1, 8)	“physically intermingled components enclosing and surrounding the percarbonate”
“a blend which encapsulates the percarbonate” (’116 patent claim 1)	“physically intermingled components which encloses and surrounds the percarbonate”
“a phosphate” (’116 patent claim 1)	“sodium tripolyphosphate and sodium pyrophosphate”

Within five days the parties shall submit a proposed order consistent with this Memorandum Opinion suitable for submission to the jury.