

United States District Court,
D. Wyoming.

DYNO NOBEL, INC,
Plaintiff.

v.

LDE CORPORATION,
Defendant.

No. 02-CV-199 J

Aug. 27, 2003.

David M. Bennion, Raymond J. Etcheverry, Parsons Behle & Latimer, Salt Lake City, UT, Michael B. Rosenthal, Rick A. Thompson, Hathaway & Kunz, Cheyenne, WY, for Plaintiff.

Donald A. Degnan, Robert J. Herrington, Timothy P. Getzoff, Holland & Hart, Boulder, CO, Michael Daniel Smith, Questar Exploration and Production Company, Director of Regulatory Affairs, Cheyenne, WY, for Defendant.

CLAIM CONSTRUCTION ORDER

ALAN B. JOHNSON, **District Judge.**

This is a patent infringement action brought by Dyno Nobel, Inc. ("Dyno"), asserting that Defendant LDE Corporation ("LDE") infringes on U.S. Patent No. 4,875,950 ("the '950 patent' "). The '950 Patent generally concerns an explosive composition, primarily for use in the mining industry, but usable for other purposes as well. The claimed explosive compositions include an oxidizer (such as ammonium nitrate), a fuel (such as fuel oil or other fuel), a bulking agent, and sometimes other substances, such as trinitrotoluene ("TNT") or emulsions made of water dispersed in oil.

The plaintiff claims infringement of claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, and 17 of the '950 patent. However, Claim 1 is the only independent claim. All other claims depend on Claim 1, and therefore, incorporate all of the limitations of this claim. The issue now before the Court is the construction of Claim 1. The Court has received voluminous briefing from the parties and held a *Markman* hearing on April 18, 2003.

ISSUES

The '950 Patent has one independent claim (Claim 1), which reads as follows:

A dry mix explosive composition including a bulking agent, comprising from 1-20% (by weight) of a fibrous vegetable protein additive, said bulking agent having a bulk density of from 0.1-0.6 grams per cubic

centimeter and said explosive composition having a bulk density of from 0.5 to 1.1 grams per cubic centimeter.

'950 Patent, col. 4, ll. 46-52.

The parties dispute the meaning of the following two claim terms and/or elements in the '950 Patent: (1) "a dry mix explosive composition;" and (2) "a bulking agent, comprising from 1-20% (by weight) of a fibrous vegetable protein additive."

I. Dyno's Proposed Constructions

A. Dry Mix Explosive

Dyno advocates that the meaning of a "dry mix explosive composition" as defined in the '950 Patent and in the industry means an explosive composition that is made by mixing an initially "dry" component, such as ammonium nitrate in prill form, with another component that may be a liquid, such as fuel oil, other oils, a water-in-oil emulsion, or water to produce an explosive composition that, once mixed, cannot be described as "dry" as that term is usually used outside the industry.

B. Fibrous Vegetable Protein Additive

The central issue is whether the word "additive" refers to the "bulking agent" or to "fibrous vegetable protein." Dyno contends that the claims only require that the bulking agent contains between 1 and 20% fibrous vegetable protein and do not require anything else. Dyno alleges this covers (1) a bulking agent made of one substance that inherently supplies the fibrous vegetable protein; and (2) a bulking agent made of more than one substance and in which one or more of these substances supplies the fibrous vegetable protein.

II. LDE'S Proposed Constructions

A. Dry Mix Explosive

LDE asserts that the term "dry mix explosive composition" means an explosive mixture of an oxidizer, fuel, and bulking agent such that the resulting composition has substantially no separate or free liquid that can be absorbable by some external material (such as paper)-i.e., the composition is substantially "dry to the touch."

B. Fibrous Vegetable Protein Additive

LDE contends that the term "fibrous protein additive" means a substance added to the bulking agent, that (1) must be of a substantially fibrous nature made up of slender, elongated, threadlike objects or structures that assist in holding together the component parts of the explosive composition; (2) must be a vegetable substance (as opposed to animal or mineral); and (3) must have a significant or meaningful amount of protein that is not incidental.

LEGAL STANDARD

A literal patent infringement analysis involves the following two steps: the proper construction of the asserted claim and a determination as to whether the accused method or product infringes the asserted claim

as properly construed. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1581-82 (Fed.Cir.1996). Claim construction is a matter of law for the Court. *Id.* at 1582. In interpreting an asserted claim, the Court should look first to the intrinsic evidence of the record, meaning the patent itself, including the claims and specification and, if in evidence, the prosecution history. *Id.* at 1582. However, it is "entirely appropriate, perhaps even preferable, for a[C]ourt to consult trustworthy extrinsic evidence" to ensure that its claim construction is consistent with the understanding of the claim terms in the pertinent technical field. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1309 (Fed.Cir.1999).

The Court first looks to the words of the claims to define the scope of the patented invention. There is a "heavy presumption" that the claim terms carry the ordinary and customary meaning that would be attributed to them by one skilled in the relevant art. *Texas Digital Syss., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1202 (Fed.Cir.2002); *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed.Cir.1999). The Court may consult treatises and dictionaries to understand the underlying technology. *Vitronics Corp.*, 90 F.3d at 1584 & n. 6. Similarly, for non-technical terms, the Court may consult a general-purpose dictionary for guidance. *MSM Investments Co. v. Carolwood Corp.*, 259 F.3d 1335, 1339 (Fed.Cir.2001). Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his own lexicographer and use terms in a manner other than their ordinary meaning, as long as the special definition of the term is clearly stated in the patent specification or file history. *Vitronics Corp.*, 90 F.3d at 1582.

Claims must be understood in light of the specification. *Markman v. Westview Instr., Inc.*, 52 F.3d 967, 979 (Fed.Cir.1995). Thus, the Court must review the specification to determine whether the inventor used any terms in a manner inconsistent with their ordinary meaning. *Vitronics Corp.*, 90 F.3d at 1582. Moreover, claims cannot be construed to cover what is disclaimed in the specification. *Cultor Corp. v. A.E. Staley Mfg. Co.*, 224 F.3d 1328, 1331 (Fed.Cir.2000).

In addition, the prosecution history, if in evidence, may be considered by the Court. *Vitronics Corp.*, 90 F.3d at 1582. The prosecution history "limits the interpretation of the claim terms so as to exclude any interpretation that was disclaimed during prosecution." *Markman*, 52 F.3d at 980.

In contrast to intrinsic evidence, "extrinsic evidence is that evidence which is external to the patent and file history, such as expert testimony [or] inventor testimony." *Vitronics Corp.*, 90 F.3d at 1584. The Court may consider extrinsic evidence "for background and education on the technology" so that the Court can discern the proper understanding of the claims. *Key Pharm. v. Hereon Labs. Corp.*, 161 F.3d 709, 716 (Fed.Cir.1999). However, if the meaning of the claim limitations is apparent from the totality of the intrinsic evidence, then the claim has been construed, and "it is improper to rely on extrinsic evidence" to interpret the claim. *Vitronics Corp.*, 90 F.3d at 1583.

DISCUSSION

I. Dry Mix Composition

Dyno advocates that the meaning of a "dry mix explosive composition" as defined in the '950 Patent and in the industry means an explosive composition that is made by mixing an initially "dry" component, such as ammonium nitrate in prill form, with another component that may be a liquid, such as fuel oil, other oils, a water-in-oil emulsion, or water to produce an explosive composition that, once mixed, cannot be described as "dry" as that term is usually used outside the industry. In contrast, LDE contends that the term "dry mix explosive composition" means an explosive mixture of an oxidizer, fuel, and bulking agent such that the

resulting composition has substantially no separate or free liquid that can be absorbable by some external material (such as paper)-i.e., the composition is substantially "dry to the touch." The Court adopts LDE's construction because it comports with the term's ordinary meaning in the industry and it is supported by the specification.

A. Ordinary and Customary Meaning

The Court adopts LDE's proposed construction because it is in accordance with the plain and customary meaning of the word, both in the explosives art and in the customary meaning. There is a "heavy presumption" that a claim term carries its ordinary and customary meaning as viewed by one of ordinary skill in the art. *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed.Cir.2003). The Court may review extrinsic evidence to assist it in comprehending the technology in accordance with the understanding of skilled artisans and as necessary for actual claim construction. *Id.* A court may look to extrinsic evidence to determine the customary meaning in the art. *Vitronics Corp.*, 90 F.3d at 1584 & n. 6 (noting that the Court may consult technical treatises and dictionaries at any time to better understand the underlying technology and may rely on dictionary definitions that do not contradict express definitions found in the patent documents). Due to the fact that the '950 patent does not expressly set forth any special definition for these terms, they should be given their ordinary and customary meaning.

The Court finds that the term "dry mix explosives composition" has an understood meaning in the explosives art. In the explosives industry, ANFO-based compositions come in essentially two different types: "dry mixes" or "slurries." Melvin Cook, *The Science of Industrial Explosives* 1 (1974); (O'Dette Patent, col. 1, ll. 10-16, Def.'s Ex. I.) Even in "dry mix" compositions, liquids are added to the dry material. *See Surface Mining* 543 (2d ed.1990) . FN1 Several treatises discuss the composition of dry blasting agents. *See, e.g., SME Mining Engineering Handbook* 11-88 (1973). This reference defines a dry blasting agent as "a material or mixture that (1) consists of a fuel and an oxidizer, (2) is intended for blasting, (3) is not otherwise classified, and (4) provided that the finished product, as mixed and packaged for use or shipment, cannot be detonated by means of a No. 8 blasting cap. *Id.* at 11-88. This reference does not specifically discuss the consistency of a dry blasting agent; however it offers some guidance. The *Handbook* states that dry blasting agents can be purchased in several forms including: "in paper, polyethylene or burlap packages ." *Id.* at 11-89. A blasting agent that contains a substantial amount of separable liquid could not be packaged in paper. In contrast, the same reference indicates that another form of blasting agent, a "slurry" is required to "satisfy the definition in the 'Dry Blasting Agent' section," but may have the consistency "anywhere from a liquid to a cohesive gel." *Id.* at 11-90. FN2

FN1. The Court recognizes that ANFO is a combination of ammonium nitrate and fuel. *See Surface Mining* 543 (2d ed.1990) (stating that "a variety of fuels could be used with the ammonium nitrate" to form an ammonium nitrate dry mix and that "for maximum energy output, the oxygen balanced mix of approximately 94.4% AN to 5.6% FO gives the optimum mix").

FN2. Moreover, the reference states that "dry slurries" which "are essentially dry blasting agents that have been coated with a water barrier or a material that forms a seal when exposed to water, are under study. They show promise of being useful in moderately wet conditions. Experimental products that have increased density due to a larger proportion of liquid ingredients also have been studied." *Id.* at 11-90.

The Science of Industrial Explosives indicates that there are two classes of high explosives called blasting agents: dry and slurry. The dry blasting agent ANFO is a simple mixture of prilled ammonium nitrate (AN) and fuel oil (FO) at the nearly oxygen balanced ratio of 94/6 AN/FO." Melvin Cook, *The Science of Industrial Explosives* 1 (1974). Although the reference does not discuss the texture or consistency of the dry blasting agent, the reference refers to slurries being "an aqueous solution." FN3

FN3. Aqueous is defined as "pertaining to, similar to, containing, or dissolved in water; watery." *The American Heritage Dictionary* 123 (2d ed.1982).

The Court draws from these references' failure to provide a consistency description for "dry blasting agents" but providing a consistency description for "slurry" blasting agents is that the consistency of a dry blasting agent is obvious; it is self-defined by using the word "dry." Moreover, the consistency is defined by implication. Both references, when describing a "slurry," created a contrast to a dry mix by stating that a "slurry" is required "to satisfy the definition in the 'Dry Blasting Agent' section," but may have the consistency "anywhere from a liquid to a cohesive gel," or noting that slurries are "an aqueous solution." *SME Mining Engineering Handbook* 11-90; Melvin Cook, *The Science of Industrial Explosives* 1. Based on these references, the Court determines that a "dry mix composition" may not have the consistency of "anywhere from a liquid to a cohesive gel" and it may not be "an aqueous solution."

Furthermore, several patents issued near the time the '950 Patent was issued are instructive on this issue. These patents do describe the consistency of this type of blasting agent; they describe "dry mix" as being an explosive composition having substantially no separate or free liquid within the composition. For example, in a patent issued in the United States, the patentee stated:

A "blasting agent" is an explosive material, generally comprising a mixture of at least two essential components: a fuel and an oxidizer. **The agent can be either a dry powder or a slurry; slurries are generally aqueous systems.** The choice of dry or slurry depends to some extent on the conditions in which the blasting agent is to be used. In modern blasting practice, dynamite and other systems related to nitro-glycerin have now almost completely been replaced by systems in which ammonium nitrate is the oxydiser, and a carbonaceous compound e.g. a hydrocarbon oil, is the fuel. These systems, if blended properly, are both effective blasting agents, and are comparatively safe to handle, **in either dry or water-wet slurry form.** They are generally described as AN-FO systems, or blasting agents.

In general, dry AN-FO systems have two disadvantages: low density, and low water resistance. In an attempt to overcome these main disadvantages, the water slurry systems were developed. These slurries generally contain about 15% water. But, in their turn, although the slurries do to some extent overcome the density and water resistance problems, in that a water-wet system will still explode the slurries also have the disadvantage that they are much less sensitive to detonation than the dry systems.

(O'Dette Patent at col. 1, ll. 10-34, Def.'s Ex. I.)

This concept is described in another patent that issued in Canada. The patentee stated:

This invention relates to explosives and more particularly is concerned with a novel "dry" explosive composition exhibiting high energy which gives reliable, uniform energy releases from batch to batch. **The terms "dry mix," "dry explosive", "dry composition" and "dry explosive composition" as used herein**

are to be taken in their generally accepted meaning in the explosive art and refer to explosives which are granular or thick, paste-like in nature and have substantially no free liquid phase thereby differentiating from the slurry type blasting compositions. These dry mixes are further characterized as being non-pumpable.

Dry, granular explosives based on ammonium nitrate, e.g. the common ANFO compositions containing generally about 94 weight per cent prilled ammonium nitrate and about 6 weight percent fuel oil, have been commercially used for a number of years.

(Canadian Patent No. 888,102 at 1, Def.'s Ex. J.)

This patent also explains that liquids are added to the composition, however, the liquids are added in a way that does not create separate and solid phases in the composition; thus the product remains substantially a dry mix. It states:

Small amounts of liquids such as petrolic liquids, including natural mineral oils and fractionated products from oil refining, as well as other liquid organics having a favorable carbon-oxygen ratio such that there is no detrimental completion of the carbon with the metal for available oxygen in the systems, can be used to promote component packing and also act as additional fuel. Also, a small amount of naturally occurring water may be present such as that naturally absorbed by the nitrates present in the compositions. **The quantities of such materials at a maximum to be employed within the ranges disclosed herein are such that formation of separate liquid and solid phases is not realized and the product is a dry composition; i.e. granular or pasty.**

(Canadian Patent No. 888,102 at 5, Def.'s Ex. J.)

The Court's construction of the term is further supported by another patent in which the patentee stated:

Due to the large percentage of solid ammonium nitrate [in the composition], the product is relatively dry to the touch and water is not easily absorbed from the formulation. The product can thus be packed in paper in the customary manner, and the product stored for at least six months without any substantial deterioration of properties. (South African Reference at 3, 4-5, Def.'s Ex. K.)

The above references indicate that "a dry mix explosive composition" can contain certain amounts of liquid substances, however the composition remains a "dry mix" explosive because such liquids are added in an amount in which the composition remains relatively "dry to the touch," no free liquid forms in the composition, and liquid cannot be easily absorbed from the composition by paper or other materials. This construction of the term "dry mix explosive" is similarly consistent with the ordinary definition of the word as established in dictionaries. Under the ordinary meaning, dry is commonly understood to mean "free from liquid or moisture; not wet, damp, or moistened." *Webster's Dictionary* at 401 (Def.'s Ex. E.)

Dyno contends that the '950 patent defines what it means by "dry mix explosive compositions" by the examples and compositions taught and claimed. The Court finds Dyno's assertion unpersuasive. "[T]he claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the disputed claim term in either the specification or prosecution history." *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed.Cir.2002). In the Background section of the patent, the inventors stated that "dry mix explosive compositions are all essentially different mixes of

oxidizers and fuel." '950 Patent, col. 1, ll. 10-11. Plaintiff asserts that its conclusion is supported by the plain claim language because many of the claims in the '950 Patent include various liquids in the "dry mix explosive composition." FN4 However, the Court finds that Dyno's proposed construction as set forth by way of example is not specific and definite enough to overcome the ordinary and customary meaning of the phrase that one of skill in the art would have understood. Moreover, the claims offered in support of Dyno's proposed construction actually fit within LDE's definition. As discussed above, the Court recognizes that the term "dry mix" covers explosives compositions "that include liquids." The Court notes that all ANFO-based explosive compositions "include liquids" since ANFO by definition, means ammonium nitrate (AN) and some type of fuel oil (FO). However, the Court finds that in an ANFO composition, fuel is added in such a manner as to be absorbed by the dry substance. Thus, the Court's interpretation does not ignore the specification and claim language that indicates that liquids are added to the composition.

FN4. Many of the claims in the '950 Patent include various liquids in the "dry mix explosive composition" such as:

Claim 2: "a dry mix composition ... further including a binding or holding agent in the form of a water-in-oil emulsion." '950 Patent, col. 4, ll. 52-55.

Claim 5: "a dry mix explosive composition ... wherein said bulking agent includes from .5-10% (by weight) lipids." '950 Patent, col. 4, ll. 62-65.

Claim 6: "a dry mix explosive composition ... further comprising dry oxidizer salts and carbonaceous liquid fuel." '950 Patent, col. 4, ll. 65-68.

Claim 10: "a dry mix explosive composition ... further comprising dry oxidizer salts and carbonaceous fuel in the form of fuel oil." '950 Patent, col. 5, ll. 12-14.

Claim 12: "a dry mix explosive composition ... wherein ... said explosive composition further includes a fuel in the form of fuel oil." '950 Patent, col. 5, ll. 19-22.

Claim 13: "a dry mix explosive composition ... comprising ... from 3%-6% (by weight) fuel oil." '950 Patent, col. 5, ll. 22 to col. 6, l. 5.

Claim 14: "a dry mix explosive composition ... wherein said bulking agent contains from 0.5%-10% (by weight) lipids. '950 Patent, col. 6, ll. 6-11.

Claim 15: "a dry mix explosive composition ... further including a binding or holding agent in the form of a water-in-oil emulsion consisting of a water-based solution of one or more oxidizer salts held in disperse phase of oil and/or wax." '950 Patent, col. 6, ll. 12-16.

Claim 16: "a dry mix explosive composition ... comprising ... up to 60% (by weight) of a water-in-oil emulsion." '950 Patent, col. 6, ll. 17-21.

Claim 17: "a dry mix explosive composition ... wherein said fibrous vegetable protein additive contains less than 20% (by weight) water." '950 Patent, col. 6, ll. 22-24.

Moreover, the Court notes that both sides provide expert testimony regarding this issue. The parties' experts provide contradictory opinions of what the term "dry mix composition" meant to one of skill in the art when the patent application was filed. The Court will not rely on either of those experts. The Court finds the extrinsic evidence of treatises and patents issued around the time that the patent application was filed are more reliable than experts opining as to what was known to one of skill in the art more than ten years ago.

B. Specification

The Court finds further support for its construction in the patent specification. The specification repeatedly discusses the purpose of the invention. Specifically, the specification describes the problems associated with dry mix explosive compositions. Namely, they can be blown away during mixing or when loading the composition in the blast hole. '950 Patent, col. 2, ll. 30-32 to col. 3, ll. 41-33. Moreover, the specification indicates that the use of a "fibrous vegetable protein additive" is a critical aspect of the invention because it "assists in holding together the component parts of the composition and contributes towards resisting segregation, such as may be caused by wind, external forces, or during loading of blast holes and the like." '950 Patent, col. 2, ll. 26-32, col. 3, ll. 41-44.

The Court finds that the contrary construction offered by plaintiff would render the intended purpose of the invention unnecessary. Dyno's interpretation would cover both dry mix and slurry compositions. Such a construction would nullify the need and purpose of the invention; of having a fibrous additive. If a slurry mix is not susceptible to the problems discussed in the specification, such as needing a fibrous vegetable matter to prevent segregation due to external causes such as wind, then the composition described cannot be a slurry. The Court cannot provide an interpretation that would be contrary to the proposed purpose of the invention. Due to the discussion regarding the need for the "fibrous additive," this Court finds that the '950 patent is not inclusive of slurry compositions.

II. Fibrous Vegetable Protein Additive

The '950 Patent's only independent claim, Claim 1, reads as follows:

A dry mix explosive composition including a bulking agent, **comprising from 1-20% (by weight) of a fibrous vegetable protein additive**, said bulking agent having a bulk density of from 0.1-0.6 grams per cubic centimeter and said explosive composition having a bulk density of from 0.5 to 1.1 grams per cubic centimeter.

'950 Patent, col. 4, ll. 46-52 (emphasis added).

The parties dispute: (1) whether the word "additive" refers to the "bulking agent" or to "fibrous vegetable protein;" (2) the meaning of the words "fibrous" "vegetable" "protein;" and (3) the meaning of "comprising from 1-20% (by weight)."

Dyno contends that the claim only requires that the bulking agent contains between 1 and 20% fibrous vegetable protein and does not require anything else. Dyno alleges this covers (1) a bulking agent made of one substance that inherently supplies the fibrous vegetable protein; and (2) a bulking agent made of more than one substance and in which one or more of these substances supplies the fibrous vegetable protein. In contrast, LDE contends that the term "fibrous protein additive" means a substance added to the bulking agent, that (1) must be of a substantially fibrous nature made up of slender, elongated, threadlike objects or structures that assist in holding together the component parts of the explosive composition; (2) must be a vegetable substance (as opposed to animal or mineral); and (3) must have a significant or meaningful amount of protein that is not incidental.

A. Whether the Word "Additive" Refers to the "Bulking Agent or to "Fibrous Vegetable Protein"

Dyno argues that because the "bulking agent" is always added to the composition, the "bulking agent" must be the "additive." Thus, Dyno claims that the "bulking agent" itself is the "additive" to the claimed "explosive composition." In contrast, LDE contends that the plain language of Claim 1 requires that the word "additive" refers to "fibrous vegetable protein" and it is added to the "bulking agent." The Court adopts in part LDE's interpretation and rejects Dyno's interpretation because LDE's interpretation: (1) comports with the plain language of Claim 1; (2) is consistent with the prosecution history; and (3) a contrary interpretation may render patent invalid.

1. Plain Language

The Court's interpretation is supported by the principles of normal English language usage. When two adjectives precede a noun and the adjectives are not separated by a comma, the first adjective modifies the combined idea of the second adjective plus the noun. *The Gregg Reference Manual* para. 169. Thus, the noun in the phrase "fibrous vegetable protein additive" is "additive." "Fibrous vegetable protein" are adjectives that describe what type of additive is required. *See The Gregg Reference Manual* para. 169. Furthermore, "additive," used as a noun, is defined as "a substance added in small amounts to something else to improve, strengthen, or otherwise alter it." *The American Heritage Dictionary of the English Language* 15 (Def.'s Ex. E.) Thus, according to the ordinary meaning of the words and the patentee's choice of phrasing, Claim 1 requires the use of "an additive," described as fibrous vegetable protein in nature; that is "added ... to something else," here, the bulking agent.

Moreover, Dyno's proposed interpretation is nonsensical and violates the plain meaning of the phrase. According to Dyno, the Court should ignore the term "additive" because it is duplicative and a superfluous reference to the use of a "bulking agent" in the composition. Dyno asserts that because the bulking agent is always added to the composition, the "bulking agent" must be the additive. FN5 Unfortunately, Dyno ignores the grammatical phrasing of the claim. In full context, the claim language provides "a dry mix explosive composition including a bulking agent, comprising from 1-20% (by weight) of a fibrous vegetable protein additive, said bulking agent having a [specified bulk density]." The phrase "comprising from 1-20% (by weight) of a fibrous vegetable protein additive" offset by commas, directly follows the term "bulking agent." Thus, it cannot refer to the dry mix composition; it clearly refers to the bulking agent.

FN5. Dyno contends that the ordinary meaning of "bulking" is "to increase in size; expand; swell." (Pl.'s Ex. E at 275.) It further argues that the ordinary meaning of "agent" is "a natural force or object producing or used for obtaining specific results." (Pl.'s Ex. E at 28.) Dyno then concludes that the bulking agent, therefore is a material added to the explosive composition to produce the effect, or obtain the result, of increasing volume of the explosive composition by expansion or by swelling, as if by increasing pore spaces. (Pl.'s Ex.

E at 1922) (defining "swell" to mean "to increase gradually in volume). Dyno asserts that the ordinary meaning of "additive" is "something that is added, as one substance to another, to alter or improve the general quality or to counteract undesirable properties." (Pl.'s Ex. E at 22-23.) Dyno then concludes that in the '950 patent, since the "bulking agent" unquestionably is a material that is "added" to an explosive composition to "bulk" or increase the volume of the explosive composition, that the bulking agent is the "additive" to the explosive composition. Dyno asserts that it logically follows that the word "additive" in the claim language references the bulking agent.

Furthermore, defining "additive" as meaning "bulking agent" would render the term "additive" superfluous because claim 1 already requires a bulking agent. Claim 1 specifically states: "A dry mix explosive composition **including** a bulking agent." (emphasis added). According to Dyno's interpretation, Claim 1 would be read as: "a bulking agent, comprising from 1-20% of itself." The Court will not read the term "additive" out of the claim. *See* Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 93 F.3d 1572, 1582-83 (Fed.Cir.1996) (recognizing that a court "must give meaning to all the words in [the] claims."). Dyno argues that the term "fibrous vegetable protein additive" is not an additive at all, but instead covers any bulking agent that is a "fibrous vegetable substance" with 1-20% content. The Court's role in a claim construction hearing is to interpret and construe the claim terms, not to re-write the claims. Construing claim 1 as advocated by Dyno Nobel, would require the Court to completely re-write the claims. The drafting of the phrase simply does not support Dyno's construction. If the patentee desired that the word additive refer to the addition of the bulking agent to the explosive composition, he could have drafted the claim to reflect that preference.

2. Prosecution History

Moreover, the prosecution history provides support for the Court's construction. The claim terms must mean something that places the claims outside the scope of the cited prior art, as the applicant argued to the PTO during prosecution. *See, e.g.,* Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed. Cir.1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution."). LDE contends that Dyno's construction of this phrase brings the claims of the patent back within the scope of the prior art that led to the rejections by the PTO.

a. Australian Prosecution History

The '950 patent claims priority based on two provisional patent applications filed in Australia. These applications issued as Australian Patent No. 598, 130. The Australian patent, as originally filed, was rejected by the Examiner as overly broad. He stated:

The specification does not fully describe the invention because insufficient teaching as to the nature of the "vegetable protein" has been provided. The use of vegetable protein includes the use of virtually all plant matter. The preferred embodiment refers to legumes such as nuts and nut shells however these are known in the field of art. The description does not specifically define the types of protein which characterize the present invention and as a result a skilled addressee would be unable to glean enough information from the specification in order to carry out the invention. Clarification of these matters is required."

* * *

However, it is noted that the use of vegetable matter in explosive compositions is well known in the field of

art.

(Def.'s Ex. G at 01528-01529.)

After this rejection, the claims were amended to limit the invention to a bulking agent containing from 1 to 20% of a fibrous vegetable protein additive, with examples of this additive (nuts and nut shells) described in the specification. The patentees argued:

"Referring to item 1 of the official letter, we point out to the Examiner that the claims and statement of invention have been amended so that the vegetable matter referred to in the earlier specification and claims is now referred to as a *fibrous vegetable protein additive* which finds ample basis within the body of the specification. It is clear from the specifications and more particularly pages 8 and 9 thereof, that the fibrous vegetable protein additive can be any additive falling within that broad definition.... In particular, it is pointed out that the claims are now limited to a composition which includes a bulking agent, that bulking agent comprising from 1-20% (by weight) of a fibrous vegetable protein additive. Examples of that fibrous additive are given within the body of the specification and each statement is therefore clearly based on the disclosure.

(Def.'s Ex. G at 1526.)

b. U.S. Prosecution History

Similar to the process in Australia, the USPTO rejected the claims as originally filed because prior art already disclosed the use of bulking agents made from various sorts of vegetable protein matter, including nuts and nutshells. (10/28/88 Office Action, Def.'s Ex. B at 1403.) FN6 Again, as in the Australian prosecution history, the patentee amended the claims and changed the phrase fibrous vegetable protein "content" to the phrase "fibrous vegetable protein additive." FN7 The patentee argued that although prior art disclosed the use of vegetable matter (including ground nuts and grain hulls) as bulking agents, none of the prior art disclosed "the use of a fibrous vegetable protein matter as a bulking agent additive." (Def.'s Ex. B at 1431.) FN8 The patentee, during the prosecution, claimed that the '950 patent included a bulking agent that must contain an additive, and the additive must be "fibrous, vegetable, and protein" in nature.

FN6. The USPTO stated:

Claim 1-18 are rejected under 35 U.S.C. 102B as anticipated by, or in the alternative, under 35 U.S.C. 103 as obvious over Yorke et al, Bampfield (I), (II) and Ciaramitaro et al.

Each of the references discloses explosive compositions containing vegetable matter such as nut hulls or shells. It would appear that the explosive products of the references would inherently possess applicants' desired properties for their composition or render applicants' composition obvious.

(10/28/88 Office Action, Def.'s Ex. B at 1403.)

FN7. Specifically, dependent claim 4, which originally read, "said bulking agent comprises up to 5% (by weight) of said fibrous vegetable protein content" was amended to read "said bulking agent comprises up to 5% (by weight) of said fibrous vegetable protein additive." (4/28/89 Amendment, Def.'s Ex. B at 1426; 4/28/89 Amendment, Def.'s Ex. B at 1428.)

FN8. The patentee also stated: "The specification further emphasizes that the use of the fibrous vegetable protein matter in the bulking agent serves to assist in the holding together of the component parts of the composition." (Def.'s Ex. B at 1429-30.) He also stated: "While the Yorke patent refers to the use of fillers in the form of vegetable matter, such as ground nuts or grain hulls, ... the Yorke disclosure fails to suggest in any way a specific bulking agent comprising from 1-20% by weight of a fibrous vegetable protein additive." (Def.'s Ex. B at 1431-32.)

The Court finds pursuant to the amendment and the arguments presented by the patentee, the PTO issued the '950 Patent over the prior art references that previously disclosed bulking agents made up of vegetable protein matter, such as ground nuts, nut shells, and grain hulls. Thus, when faced with the Patent Examiner's rejection based on prior art that taught using nut shells as the bulking agent (which have a protein content in the 1-20% range), the applicant expressly amended the claims that used the phrase "fibrous vegetable protein content" to read "fibrous vegetable protein additive." (10/28/88 Office Action, Def.'s Ex. B at 1403, 1426, 1428.) The Court will not allow the patentee or subsequent patent owner to reclaim what was disclaimed or distinguished in the prosecution history.

3. Potential Invalidity

The Court is concerned that Dyno's interpretation of the patent will render the patent invalid because it would read on prior art. "[C]laims should be read in a way that avoids ensnaring prior art if it is possible to do so." *Harris Corp. v. IXYS Corp.*, 114 F.3d 1149, 1153 (Fed.Cir.1997). As the Patent Examiner noted, the prior art already disclosed the use of ground nuts, nut shells, and grain hulls for use as bulking agents in explosive compositions. (10/28/88 Office Action at Def.'s Ex. at 1403; 4/28/89 Amendment at 1431-33.) Peanut shells are fibrous vegetable substances that contain approximately 8.5% protein content. '950 Patent, col. 4, ll. 22-27; (Helms Decl. para. 4, Def.'s Ex. V.) Because Dyno argues that Claim 1 covers any bulking agent that is simply a "fibrous vegetable" substance with a protein content between 1-20%, the '950 patent would claim bulking agents (such as nut shells) that were previously disclosed in the art. According to the Patent Examiner, without the amendments, the patent could not be issued because it was either obvious or anticipated under 35 U.S.C. s.s. 102 or 103 pursuant to the Yorke, Bampfield, and Ciaramitaro patents. (Def.'s Ex. Y.)

B. Construction of the Words "Fibrous," "Vegetable," and "Protein"

Each of the words in questions has a plain meaning. Absent evidence in the patent that the patentee meant something other than the plain meaning, the ordinary meaning governs. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366-67 (Fed.Cir.2002).

1. "Fibrous"

The parties dispute the ordinary meaning of the term. LDE contends that "fibrous" should be construed as "having, consisting of, or resembling fibers, which are slender, elongated structures; a filament or strand." *The American Heritage Dictionary of the English Language* 487 (10th ed.) (Def.'s Ex. E.) Dyno advocates that "fibrous" should be given a food like definition. Dyno asserts that because the claim also has the term "vegetable" in it, and that vegetable is a food, a food definition must be used. Thus, Dyno concludes that the "ordinary meaning" of fibrous vegetable protein is any protein from "the structural part of edible plants or plant products." The Court adopts LDE's construction because it comports with the purpose of the invention as set forth in the specification.

The Court finds support for its construction in the specification. The specification explains that the additive can be in the form of legumes, including nuts and nut shells, and preferably in the form of peanut shells or walnut shells. '950 Patent, col. 5, ll. 22-33 .FN9 The Specification also explains a problem associated with dry mix explosive compositions—they can be blown away during mixing or when loading the composition into the blast hole. Col. 2, ll. 30-32; col. 3, ll. 41-44. The specification further explains that the "fibrous nature" of the additive is a critical aspect of the invention because it assists in holding together the other components of the dry composition. '950 Patent, col. 2, ll. 26-32; col. 3, ll. 41-44.

FN9. Peanut shells are fibrous because they contain thread-like structures.

The Court finds Dyno's position unpersuasive. The specification and prosecution history of the '950 Patent describe a structural benefit of the fibrous nature of the additive to the bulking agent. The '950 Patent specification emphasizes that the "fibrous nature" of the additive is critical because it is the "fibrous nature" that assists in holding together the component parts of the dry composition. '950 Patent, col. 2, ll. 26-32; col. 3, ll. 41-44 (stating that "the fibrous nature of such vegetable matter assists in holding together the component parts of the composition and contributes towards resisting segregation"). Dyno's interpretation of "fibrous" gives no meaning to the word.

2. "Vegetable"

LDE contends that "vegetable" should be construed to mean "of, pertaining to, or derived from a plant or plants. *The American Heritage Dictionary of the English Language* 1419 (10th ed.). In contrast, Dyno contends that "vegetable" means "any plant whose ... parts are used for food." *Webster's New Universal Unabridged Dictionary* 2109 (1996). The Court finds that the patent gives no indication as to which construction is appropriate and both provided definitions appear to be consistent with the claims. Thus, the Court will adopt LDE's proposed construction that "vegetable" means "of, pertaining to, or derived from a plant or plants" because it encompasses both definitions provided. In addition, Dyno provides no justification in the specification for its more restrictive definition. *See Texas Digital Syss., Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1203 (Fed.Cir.2002) ("If more than one dictionary definition is consistent with the use of the words in the intrinsic record, the claim terms may be construed to encompass all such consistent meanings.").

3. "Protein"

Dyno did not object to LDE's proposed construction of the term. Thus, the Court construes "protein" as "any of a group of complex nitrogenous organic compounds ... that contain amino acids as their basic structural units." *The American Heritage Dictionary of the English Language* 1051 (10th ed.).

However, LDE contends that the Court should add a limitation that requires that the additive have a non-incident amount of the above discussed qualities. LDE argues the inherent concept of the additive "altering" the bulking agent plainly excludes items that have insignificant or incidental amounts of these qualities. Finding that there is no support in the patent claims and specifications for such a limitation, the Court refuses to engage in this type of interpretation.

C. The Meaning of "comprising from 1-20%"

LDE submits that "1-20%" refers to the amount of the additive, and Dyno argues that "1-20%" refers only to the amount of protein content. Based on a plain reading of the claim language and the above constructions, the Court finds that the "fibrous vegetable protein additive" must be 1-20% (by weight) of the bulking agent.FN10

FN10. The Court's interpretation is supported by the prosecution history. In the amendment, the applicant stated:

It is important in order for the desired results to be achieved so that the final explosive composition satisfies the objects of the present invention, relative to a dry mix explosive composition, that the bulking agent added comprise of from 1 to 20% by weight of the fibrous vegetable protein additive.

(4/28/89 Amendment, Def.'s Ex. B at 1430.)

D.Wyo.,2003.

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