

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

GEODYNAMICS, INC.,

*Plaintiff,*

v.

DYNAENERGETICS US, INC.,

*Defendant.*

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No. 2:17-cv-00371-RSP

**MEMORANDUM OPINION AND ORDER**

In this patent case, the Court will now consider Defendant DynaEnergetics US, Inc.’s Motion for Summary Judgment of Noninfringement of the ’394 Patent [Dkt. # 111]. After considering the parties’ briefs on the issue<sup>1</sup> and the controlling case law, the Court determines that a reasonable jury could find that Defendant’s accused products satisfied the limitations of the asserted claims, so this Motion is DENIED.

**I. BACKGROUND**

Plaintiff GEODynamics, Inc. (“GEOD”) owns U.S. Patent No. 8,220,394 (“’394 Patent”). Compl. [Dkt. #1]. The ’394 Patent relates to a reactive shaped charge liner that may be used within a perforator for perforating and fracturing well completions. ’394 Patent at 1:5–7. The liner is placed within a housing, and highly explosive material is located within the volume enclosed between the liner and the housing. *Id.* at fig. 1; 7:15–

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<sup>1</sup> A Response in Opposition from GEOD [Dkt. #152], a Reply from DYNA [Dkt. #169], and a Sur-Reply from GEOD [Dkt. #187] have also been filed.

16. A recess within the housing allows for the activation of the highly explosive material. *Id.* at 7:16–20. Upon activation of the highly explosive material, the material causes the reactive shaped liner to have an exothermic reaction that helps further distress and fracture well completions. *Id.* at 6:6–8.

GEOD is suing Defendant DynaEnergetics US, Inc. (“DYNA”) for patent infringement. Compl. at 4 [Dkt. #1]. GEOD argues that DYNA’s DPEX and HaloFrac charges infringe upon Claim 1 and 28 of the ’394 Patent. Pretrial Hearing Tr., Sept. 18, 2018 at 85:23–86:5. DYNA filed a Motion for Summary Judgment of Noninfringement. Def.’s Mot.

The parties both identify that the critical issue here is whether the accused charges form NiAl upon activation.<sup>2</sup> Pl.’s Opp’n at 3; Def.’s Reply at 1.

#### **A. Malte Veehmayer Statements**

Malte Veehmayer was the head of R&D during the development of the accused DPEX product. Veehmayer Dep. at 17:13–21 [Dkt. #91-4]. Veehmayer stated that he was a part of the decision process for any engineering decision regarding the composition of the liner material. *Id.* Veehmayer was asked in his deposition about the design of the DPEX charges:

Q. And you would agree with me, Dr. Veehmayer, that the nickel and aluminum in the DPEX liner undergo an exothermic

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<sup>2</sup> Claim 1 of the ’394 Patent requires that at least two reactive metal elements “are provided in respective proportions calculated to give an electron concentration of 1.5.” ’394 Patent at 7:64–8:11. In the Claim Construction Order, the Court stated that “[i]f a reactive shaped charge liner is activated, and an intermetallic product with an electron concentration of 1.5 is formed, it will necessarily have the respective proportions necessary to yield such a reaction.” Claim Construction Order at 34 [Dkt. # 82]. Both parties agree that NiAl has an electron concentration of 1.5. Def.’s Mot. at 9; Pl.’s Opp’n at 3.

reaction to form the intermetallic phase of [NiAl] upon activation of the DPEX shaped charge? . . .

A. At least that was our work hypothesis when we started to work on the reactive liners based on literature evidence we had.

. . .

Q. So DPEX was designed so that the nickel and aluminum would undergo an exothermic reaction?

A. That was the basic idea of the design.

Q. And that exothermic reaction was caused by the formation of the intermetallic phase NiAl?

A. That was the idea on which -- or the hypothesis, the work hypothesis, on which we based the decision to use aluminum and nickel based on the literature evidence that we had.

Veehmayer Dep. 18:6–19:3.

Additionally, a DYNA customer sent an email in 2008. Customer Email, DYNA\_002415 [Dkt. #152-4]. The customer stated that he had just completed some tests using the DPEX charges and that “one observation I have made . . . is the apparent significant temperature response as compared to normal charges.” *Id.* He then asked “[i]s this my imagination [or] is this a feature of the new liner??” *Id.* The question was passed along through DYNA to Frank Preiss, who then forwarded the question to Veehmayer. *Id.* at DYNA\_002415. Veehmayer’s email was written in German, but Priess translated this email in his deposition. Preiss Dep. 71:10–72:19 [Dkt. #152-2]. Priess translated the email as saying that “[t]emperature enhancement is possible. To calculate that, you would need . . . the heat of the reaction when nickel-aluminum intermetallic phase is formed.” *Id.* at 72:16–19.

In his deposition, Veehmayer also stated that “we never were interested” in whether nickel aluminide was formed when a DPEX charge was shot. Veehmayer Dep. at 75:10–

19. He also stated that “we never looked into the question of what kind of products are formed” by the DPEX charges. *Id.* at 82:22–83:4.

### **B. Hardesty’s Tests**

Hardesty performed a collection analysis of the accused shaped charge liners. Hardesty Dep. at 83:6–14 [Dkt. #111-3]; Hardesty Declaration Ex. 1 [Dkt. #112-2]. After completing his collection tests, the resulting products of these collection tests were sent to Dr. Vallerie DeLeon. DeLeon Rep. at ¶ 19 [Dkt. #112-4]. DeLeon performed her elemental and phase analysis to determine whether NiAl was present, and she claims that NiAl was present. DeLeon Rep. at ¶ 22 [Dkt. #109-2].

Hardesty performed several steps in conducting his analysis:

(1) removing the liners from their associated shaped charges, Hardesty Dep. at 209:25–210:2,

(2) hand crushing the liner material, *id.* at 210:7–13,

(3) passing the crushed liner material through a sieve to make the particles uniform size, *id.* at 210:17–21,

(4) collecting a sample of sieved liner material amounting to less than half of the original liner, *id.* at 211:17-20,

(5) pouring the sieved liner material into a steel barrel with a cylindrical cavity with a diameter of approximately 1.3 inches and a depth of approximately 3 inches, *id.* at 129:21–130:1; 137:4–12, 140:13–15, 144:3–5,

(6) inserting a steel piston with a diameter of approximately 1.3 inches and a length of approximately 3.5 to 4 inches into the steel barrel, *id.* at 143:21–144:7, and

(7) attaching a 32-gram flat input charge to the outside of the barrel, *id.* at 147:4–152:19.

## **II. APPLICABLE LAW**

The burden of proving direct infringement rests upon the patentee. *Medtronic, Inc. v. Mirowski Family Ventures, LLC*, 571 U.S. 191, 198 (2014). To satisfy this burden, the patentee must prove “that an accused product or method meets every claim limitation either literally or under the doctrine of equivalents. *Pfizer, Inc. v. Teva Pharms., USA, Inc.*, 429 F.3d 1364, 1376 (Fed. Cir. 2005). “Direct infringement can be proven by circumstantial evidence.” *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1364 (Fed. Cir. 2012).

“The court shall grant summary judgment if the movant shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). Evidence is construed in the light most favorable to the non-moving party, and all reasonable inferences are to be drawn in that party's favor. *R & L Inv. Prop., L.L.C. v. Hamm*, 715 F.3d 145, 149 (5th Cir. 2013) (citing *Griffin v. United Parcel Serv., Inc.*, 661 F.3d 216, 221 (5th Cir. 2011)). A factual dispute is genuine only where “the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” *Amgen Inc. v. Conn. Ret. Plans & Tr. Funds*, 568 U.S. 455, 480 (2013) (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247–48 (1986)).

## **III. DISCUSSION**

DYNA states multiple times that the Court's claim construction required testing,<sup>3</sup> and because of this supposed requirement, evidence other than the results of actual testing become irrelevant. The Court fails to see how DYNA reaches this interpretation. As a general rule, “[d]irect infringement can be proven by circumstantial evidence.” *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1364 (Fed. Cir. 2012). The Court has not altered this general rule in its claim construction. Thus, circumstantial evidence may be used to show infringement in this case.

The statements made by Malte Veehmayer are relevant to the issue of whether the accused products produce NiAl upon activation. Veehmayer was the head of R&D for DYNA during the development of the DPEX charge, and he stated that he was a part of the decision-making process for any engineering decision regarding the composition of the liner. Veehmayer Dep. at 17:13–21. DYNA argues that Veehmayer's statements are not based on any actual chemical testing and are therefore irrelevant, but Veehmayer's statements are relevant to the infringement inquiry. His statement that “nickel-aluminum intermetallic phase is formed” makes it more probable that the accused products produce NiAl, even if conclusive testing was not performed. He also stated that the “basic idea of the design” for the accused products is to form NiAl, and this also makes it more probable that the accused products produce NiAl.

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<sup>3</sup> Def's Mot. at 10 (“In light of the Court's claim construction, testing was required to determine whether the “respective proportions” limitations are satisfied, and DynaEnergetics provided GEODynamics with multiple samples of the accused products.”); Def's Reply at 1 (“GEO argues that different fact and expert testimony demonstrates that produce NiAl. But the evidence identified by GEO is irrelevant to infringement under the Court's claim construction, where it made clear that testing is required.”).

The statements made by Malte Veehmayer would help a reasonable jury to reach a conclusion that the accused products produce NiAl upon activation. In his email response to the customer, Veehmayer stated that “[t]emperature enhancement is possible. To calculate that, you would need . . . the heat of the reaction when nickel-aluminum intermetallic phase is formed.” Preiss Dep. at 72:16–19 (translating Response to Customer Email). Based on this statement, from the person who was the head of R&D at the time that the accused product was being developed, a reasonable jury could conclude that the accused products form NiAl upon activation. Additionally, Veehmayer states that the “basic idea of the design” for the accused charges was to have nickel and aluminum form the intermetallic phase NiAl, causing an exothermic reaction. *Id.* at 18:16–19:3. A reasonable jury could infer from these statements that the products operate to meet the “basic idea of the design” and form the “nickel-aluminum intermetallic phase.”

The results of Dr. DeLeon’s analysis are relevant to the issue of whether NiAl is formed upon activation of the accused products, and the results would help a reasonable jury to reach a conclusion that NiAl is formed upon activation of the accused products. DYNA argues that Hardesty has substantially altered the accused products to the point where any analysis of samples from his tests is irrelevant. Claim 1 includes the limitation that metal elements within the liner “will undergo” a reaction and form NiAl. DYNA argues that any analysis of these samples merely shows that the accused liners are capable of undergoing a reaction and forming NiAl. DYNA contends that the results do not show that the metal elements within the accused liners “will undergo” a reaction and form NiAl, so DYNA reaches the conclusion that DeLeon’s analysis is irrelevant. However, even if

Hardesty substantially altered the liner in conducting his collection tests, DeLeon detected NiAl within the products of Hardesty's collection tests, and this makes it more probable that the metal elements within the liners "will undergo" a reaction and form NiAl upon activation. Thus, DeLeon's identification of NiAl is still relevant, and it could help a reasonable jury to reach a conclusion that the accused products produce NiAl upon activation.

Based on Veehmayer's statements in his deposition, Veehmayer's statements in the email to a customer, and the detection of NiAl by Dr. DeLeon from the products of Hardesty's collection tests, a reasonable jury could determine that NiAl is formed upon activation of the accused products and that the accused charges infringe upon Claims 1 and 28 of the '394 Patent.

#### **IV. CONCLUSION**

This Motion for Summary Judgment for Non-Infringement is DENIED.

**SIGNED this 28th day of September, 2018.**

  
ROY S. PAYNE  
UNITED STATES MAGISTRATE JUDGE