

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

PLASTIC OMNIUM ADVANCED
INNOVATION AND RESEARCH,

Plaintiff,

v.

DONGHEE AMERICA, INC. and
DONGHEE ALABAMA, LLC,

Defendants.

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C.A. No. 16-187-LPS

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MEMORANDUM OPINION

May 22, 2018
Wilmington, Delaware



STARK, U.S. District Judge:

Pending before the Court in this patent infringement action are Defendants Donghee America, Inc. and Donghee Alabama, LLC's ("Donghee" or "Defendants") *Daubert* Motion to Exclude the Testimony of David A. Haas (D.I. 219) and Donghee's Motion for Summary Judgment (D.I. 223).

I. BACKGROUND

Plaintiff Plastic Omnium Advanced Innovation and Research ("Plastic" or "Plaintiff") filed suit against Donghee on March 23, 2016, alleging infringement of seven U.S. patents. (*See* D.I. 1) On August 24, 2016, Plastic amended its complaint to assert infringement of eight U.S. patents: U.S. Patent Nos. 6,814,921 (the "'921 patent"), 6,866,812 (the "'812 patent"), 7,166,253 (the "'253 patent"), 8,122,604 (the "'604 patent"), 8,163,228 (the "'228 patent"), 9,079,490 (the "'490 patent"), 9,399,326 (the "'326 patent"), and 9,399,327 (the "'327 patent"). (*See* D.I. 14) On October 23, 2017, the parties stipulated to dismissal of the '604 patent. (*See* D.I. 195) The parties filed the pending motions on February 2, 2018. A hearing on the motions was held on April 3, 2018. (*See* D.I. 298 ("Tr.")) At the April 3 hearing, the parties informed the Court that Plastic has withdrawn its infringement allegations for the '228 patent. (*See* Tr. at 4-5, 70) The parties stipulated to dismissal of the '228 patent on April 17, 2017. (*See* D.I. 297) Therefore, the Court will not consider motions directed to that patent, as they are moot.

II. LEGAL STANDARDS

A. *Daubert* Motion

In *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597 (1993), the Supreme Court explained that Federal Rule of Evidence 702 creates "a gatekeeping role for the [trial] judge" in

order to “ensur[e] that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” The rule requires that expert testimony “help the trier of fact to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702(a). Expert testimony is admissible only if “the testimony is based on sufficient facts or data,” “the testimony is the product of reliable principles and methods,” and “the expert has reliably applied the principles and methods to the facts of the case.” Fed. R. Evid. 702(b)-(d).

There are three distinct requirements for admissible expert testimony: (1) the expert must be qualified; (2) the opinion must be reliable; and (3) the expert’s opinion must relate to the facts. *See generally Elcock v. Kmart Corp.*, 233 F.3d 734, 741-46 (3d Cir. 2000). Rule 702 embodies a “liberal policy of admissibility.” *Pineda v. Ford Motor Co.*, 520 F.3d 237, 243 (3d Cir. 2008). Motions to exclude evidence are committed to the Court’s discretion. *See In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 749 (3d Cir. 1994).

B. Summary Judgment Motion

Under Rule 56(a) of the Federal Rules of Civil Procedure, “[t]he 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.” The moving party bears the burden of demonstrating the absence of a genuine issue of material fact. *See Matsushita Elec. Indus. Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 585-86 (1986). An assertion that a fact cannot be – or, alternatively, is – genuinely disputed must be supported either by “citing to particular parts of materials in the record, including depositions, documents, electronically stored information, affidavits or declarations, stipulations (including those made for purposes of the motion only), admissions, interrogatory answers, or other materials,” or by “showing that the materials cited do

not establish the absence or presence of a genuine dispute, or that an adverse party cannot produce admissible evidence to support the fact.” Fed. R. Civ. P. 56(c)(1)(A) & (B). If the moving party has carried its burden, the nonmovant must then “come forward with specific facts showing that there is a genuine issue for trial.” *Matsushita*, 475 U.S. at 587 (internal quotation marks omitted). The Court will “draw all reasonable inferences in favor of the nonmoving party, and it may not make credibility determinations or weigh the evidence.” *Reeves v. Sanderson Plumbing Prods., Inc.*, 530 U.S. 133, 150 (2000).

To defeat a motion for summary judgment, the nonmoving party must “do more than simply show that there is some metaphysical doubt as to the material facts.” *Matsushita*, 475 U.S. at 586; *see also Podobnik v. U.S. Postal Serv.*, 409 F.3d 584, 594 (3d Cir. 2005) (stating party opposing summary judgment “must present more than just bare assertions, conclusory allegations or suspicions to show the existence of a genuine issue”) (internal quotation marks omitted). The “mere existence of some alleged factual dispute between the parties will not defeat an otherwise properly supported motion for summary judgment;” a factual dispute is genuine only where “the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247-48 (1986). “If the evidence is merely colorable, or is not significantly probative, summary judgment may be granted.” *Id.* at 249-50 (internal citations omitted); *see also Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986) (stating entry of summary judgment is mandated “against a party who fails to make a showing sufficient to establish the existence of an element essential to that party’s case, and on which that party will bear the burden of proof at trial”). Thus, the “mere existence of a scintilla of evidence” in support of the nonmoving party’s position is insufficient to defeat a

motion for summary judgment; there must be “evidence on which the jury could reasonably find” for the nonmoving party. *Anderson*, 477 U.S. at 252.

III. DISCUSSION

A. Donghee’s *Daubert* Motion

Donghee moves to exclude Plastic’s damages expert’s opinion in its entirety, based on several grounds. Plastic’s damages expert, David Haas, “concluded that the appropriate compensation for [Donghee’s] infringement of all of the Patents-in-Suit would be a total reasonable royalty of \$9” per fuel tank. (D.I. 221 Ex. A at 6) In reaching this conclusion, Mr. Haas “categorized the asserted patents into three technology groupings” – Core TSBM Technology, Deformable Pipe Technology, and Rivet Snapping Technology – and applied the 15 *Georgia-Pacific* factors to determine what reasonable royalty rate the parties would have agreed to at the time of the hypothetical negotiation for each group. (*Id.* at 6, 24) The hypothetical negotiation construct “attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began,” by presuming that the parties are both willing to enter into a license with each other and that the patents are valid, enforceable, and infringed. *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1324-25 (Fed. Cir. 2009).

Mr. Haas determined that the hypothetical negotiation would have occurred as early as 2012 or as late as January 2014, and that the reasonable royalty rate and total damages would be the same regardless of which date within this period is selected. (D.I. 221 Ex. A at 24-25) Based on his analysis, Mr. Haas concluded that reasonable royalties would be \$5 per unit for the Core TSBM Technology (the ’921, ’812, and ’253 patents), \$2 per unit for the Deformable Pipe

Technology (the '228 patent), and \$2 per unit for the Rivet Snapping Technology (the '490, '326, and '327 patents). (*Id.* at 7)

Donghee identifies several issues with Mr. Haas's opinions. The Court will consider each in turn.

1. Sufficiency of Facts and Data Underlying Opinions

Donghee first argues that "Mr. Haas'[s] royalty rate opinions are not justified by, nor based on, sufficient facts or data," referring particularly to two pieces of evidence on which Mr. Haas relies. (D.I. 220 at 4)

Donghee asserts that Mr. Haas's \$9 total royalty (including the \$2 royalty for the Rivet Snapping Technology) is not justified by his reliance on a license for one foreign patent having a royalty rate of \$1. (*See id.* at 5) This relates to the *Georgia-Pacific* factor of "[t]he royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty." *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970), *modified sub nom. Georgia-Pac. Corp. v. U.S. Plywood-Champion Papers, Inc.*, 446 F.2d 295 (2d Cir. 1971). "Actual licenses to the patented technology are highly probative as to what constitutes a reasonable royalty for those patent rights because such actual licenses most clearly reflect the economic value of the patented technology in the marketplace." *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 79 (Fed. Cir. 2012).

Since there were no actual licenses to any of the seven asserted patents, Mr. Haas reviewed the next best thing: a license for a European patent that is the foreign equivalent to a U.S. patent from which the asserted '326 and '327 patents are continuations. (*See* D.I. 221 Ex. A at 30) That license, dated July 1, 2013, was executed between Plastic's predecessor, Inergy

Automotive Systems (“Inergy”), and Kautex Textron GmbH & Co KG (“Kautex”), and licensed a European patent related to rivet snapping for 0.75 euros (then equivalent to \$0.98) per product manufactured, sold, or delivered. (*See id.* at 30-31) Recognizing that the license has some limited comparability, as it is for one non-asserted patent, Mr. Haas opined that “a reasonable royalty rate for the asserted Rivet Snapping Technology patents would need to be higher than the approximately \$1 per unit royalty” agreed to in the Kautex license, because (1) that license granted rights to one patent not in suit but related to Rivet Snapping Technology, (2) that license benefitted Plastic by validating the technology, and (3) Plastic invested deeply in the technology whereas Donghee did “not have similar R&D costs.” (*Id.* at 32-33, 35, 45)

The Court finds Mr. Haas’s opinions with respect to the Kautex license, together with the rest of his analysis under the *Georgia-Pacific* factors, are sufficiently related to the facts of the case. Donghee’s reliance on *ePlus, Inc. v. Lawson Software, Inc.*, 764 F. Supp. 2d 807 (E.D. Va. 2011), for its argument that Mr. Haas arbitrarily “doubles” the \$1 Kautex license royalty rate “with absolutely no explanation,” is unpersuasive. (D.I. 220 at 5-6) In *ePlus*, the expert first determined a baseline royalty rate under factor 1 based on an improper review of minimally probative settlement licenses that involved improperly converting lump sum royalties into per unit royalties and using an inappropriate royalty base, and then arbitrarily doubling that baseline royalty rate. *See ePlus*, 764 F. Supp. 2d at 814-15. Here, Mr. Haas appropriately considered the totality of the evidence in connection with all 15 *Georgia-Pacific* factors in determining a \$2 rate for the Rivet Snapping Technology.

Second, Donghee argues it is inappropriate for Mr. Haas to rely on Inergy’s “unaccepted proposal” to Kautex “for a worldwide cross license of dozens of patents,” particularly as there is

no evidence that this proposal was ever communicated to Kautex. (D.I. 220 at 6) As part of his factor 1 analysis, Mr. Haas considered an April 30, 2009 Inergy slide deck regarding the status of discussions between Inergy and Kautex with respect to their patent portfolios. (See D.I. 221 Ex. A at 33-36) (citing Ex. D) The deck demonstrates that Plastic “contemplated a balancing royalty rate of 2.5% of revenue” for its TSBM patent portfolio “in addition to a royalty-free license to Kautex’s NGFS patents,” because Plastic believed its TSBM portfolio was stronger than Kautex’s NGFS portfolio. (*Id.* at 33-34) Mr. Haas discussed several additional distinguishing characteristics between the contemplated cross-license and the hypothetical license, including that the cross-license was never executed, the negotiation was for a worldwide license, design-around costs, and the possible collaboration between the parties. (See *id.* at 34-35) Thus, Mr. Haas concluded that a hypothetical license to the TSBM technology would have a royalty rate higher than 2.5%. (See *id.* at 36) Donghee argues that Mr. Haas’s opinions regarding this contemplated royalty offer should be excluded, because offers – particularly if never conveyed – have little value. (See D.I. 220 at 7-9) Further, the contemplated offering was a cross-license for worldwide rights to a large number of technologies and patents, and the source of the information is biased. (See *id.*)

The Court is not persuaded by Donghee’s position. Donghee’s reliance on *MiiCs & Partners, Inc. v. Funai Elec. Co., Ltd.*, 2017 WL 6268072, at *4 (D. Del. Dec. 7, 2017), is misplaced because in that case there was evidence a rejected offer may have been artificially inflated, particularly because it was made in anticipation of litigation. See also *Whitserve, LLC v. Comput. Packages, Inc.*, 694 F.3d 10, 29-30 (Fed. Cir. 2012) (noting “proposed licenses may have some value for determining a reasonable royalty in certain situations,” but “[t]heir

evidentiary value is limited” because “patentees could artificially inflate the royalty rate by making outrageous offers”). In 2009, at the time of this offer, Inergy and Kautex were discussing a cooperation agreement, a situation quite distinct from anticipation of litigation. Donghee’s criticisms can be adequately addressed through cross-examination and the presentation of competing evidence. *See i4i Ltd. P’ship v. Microsoft Corp.*, 598 F.3d 831, 852 (Fed. Cir. 2010) (“When the methodology is sound, and the evidence relied upon sufficiently related to the case at hand, disputes about the degree of relevance or accuracy (above this minimum threshold) may go to the testimony’s weight, but not its admissibility.”). “These disagreements go to the weight to be afforded the testimony and not its admissibility.” *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1333 (Fed. Cir. 2012).

2. Relevance of Expected Damages from Litigation

Donghee further argues that Mr. Haas’s opinion – that doubling the 2.5% unconsummated royalty rate to 5% is supported by the 2009 Inergy slide deck, which states that damages from litigation would be “~ twice a negotiated royalty rate?” (D.I. 221 Ex. D at PO_00185935; D.I. 242 Ex. B at 210) – should be excluded because “the premise of the hypothetical negotiation is to determine what the parties would have agreed to *outside the threat of litigation*.” (D.I. 220 at 9-10) (emphasis in original) The Court agrees with Donghee.

Since Mr. Haas purports to use the hypothetical negotiation framework, which presumes that the asserted patents are valid and infringed and that the licensor and licensee are willing to enter into a license agreement, it is improper for Mr. Haas to inflate (let alone double) a royalty rate on the basis that damages may be larger in litigation. *See ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860, 872 (Fed. Cir. 2010) (acknowledging that “hypothetical reasonable royalty

calculation occurs before litigation and that litigation itself can skew the results of the hypothetical negotiation”).

Mr. Haas’s testimony, and any exhibits (including the slide deck), will need to be modified or redacted consistent with the Court’s holding.

3. Reliability of Opinions

Donghee further attacks Mr. Haas’s opinions as insufficiently tied to the facts of the case, as his \$9 rate is “seemingly pick[ed] . . . out of thin air.” (D.I. 220 at 12) In Donghee’s view, Mr. Haas fails to offer “any basic explanation of which numbers he multiplied or adjusted, and in which direction, to arrive at a \$9 per unit royalty.” (*Id.*) The Court disagrees.

“When performing a *Georgia-Pacific* analysis, damages experts must not only analyze the applicable factors, but also carefully tie those factors to the proposed royalty rate.” *Exmark Mfg. Co. Inc. v. Briggs & Stratton Power Prods. Grp., LLC*, 879 F.3d 1332, 1350 (Fed. Cir. 2018). In *Exmark*, the Federal Circuit determined that a damages expert’s opinions should have been excluded, as the expert had explained only the benefits of the patented technology and that the negotiations would have recognized the importance of those advantages, but failed to explain how those advantages – or any of the *Georgia-Pacific* factors – led to her 5% royalty rate. *See id.* What was missing was any “explanation of both why and generally to what extent the particular factors impact the royalty calculation needed.” *Id.* (internal quotation marks and alterations omitted).

Even so, *Exmark* also stated that “mathematical precision is not required.” *Id.* As Plastic argues, “many of the *Georgia-Pacific* factors are qualitative, not quantitative,” and therefore experts may supplement quantitative evidence with the expert’s own experience and judgment.

(Tr. at 61-62) Mr. Haas identified royalty rates and license offers in comparable licenses in evidence, extensively analyzed each of the *Georgia-Pacific* factors and explained when a factor might contribute to a higher royalty rate, and described which factors carried the “greatest weight” in the hypothetical negotiation, all before determining three reasonable royalty rates for three different technology groupings. (See, e.g., D.I. 221 Ex. A at 35, 36, 40, 45, 69) This was an acceptable methodology. Donghee’s criticisms may be the subject of proper cross-examination and/or presentation of competing evidence.

4. Mr. Haas’s Apportionment Analysis

Donghee argues Mr. Haas failed to apportion either the royalty base or the royalty rate to account for the fact that the accused fuel tanks consist of patented and unpatented features. (See D.I. 220 at 13-14) “[W]here multi-component products are involved, the governing rule is that the ultimate combination of royalty base and royalty rate must reflect the value attributable to the infringing features of the product, and no more.” *Ericsson, Inc. v. D-Link Sys., Inc.*, 773 F.3d 1201, 1226 (Fed. Cir. 2014). Apportionment may be done through the royalty base, the royalty rate, or both. See *Exmark*, 879 F.3d at 1348. When apportioning the royalty rate, “one possible way to do this is through a proper analysis of the *Georgia-Pacific* factors.” *Id.* at 1348-49. “The essential requirement is that the ultimate reasonable royalty award must be based on the incremental value that the patented invention adds to the end product.” *Ericsson*, 773 F.3d at 1226.

As discussed, Mr. Haas determined reasonable royalty rates for the three technology groupings after extensive consideration of the *Georgia-Pacific* factors. He opined that a per unit running royalty was more appropriate than a lump sum royalty or percentage royalty because it

“is consistent with the one executed patent license” he reviewed and “is not dependent on the price that Donghee ultimately charges customers.” (D.I. 221 Ex. A at 26-27) Moreover, he apportioned the per unit royalty rates to account for the fact that “each fuel tank program[’]s specification and componentry is different, and each program has a different selling price per fuel tank.” (*Id.* at 27) Thus, a per unit royalty “allows Donghee to discount, add, or eliminate attachments and other accessories to a fuel tank as needed, without having to pay a higher or lower royalty to Plastic.” (*Id.*) In other words, a per unit royalty is intended to account for the patented features of the fuel tank (and not unpatented accessories and attachments).

Mr. Haas also determined that the appropriate royalty base consisted of the total number of fuel tanks sold during the damages period, because this “represent[s] the apportioned base of fuel tank units manufactured using the TSBM Core Technology patents plus internally mounted components attached through use of either the Deformable Pipe Technology patent or the Rivet Snapping Technology patents.” (*Id.*) This royalty base “is also consistent with the only executed license of [Plastic’s] TSBM patented technology.” (*Id.*) Mr. Haas further apportioned by accounting for a single infringement of each patent per tank. (*See* D.I. 242 Ex. B at 15-16, 18-19)

Again, Donghee’s concerns are adequately addressed through proper cross-examination and presentation of competing evidence.

5. Mr. Haas’s Opinions Disclosed At Deposition

Donghee further argues that Mr. Haas disclosed opinions during his deposition that were not provided in his expert reports and these new opinions should be excluded at trial. (*See* D.I. 220 at 15) Near the end of Mr. Haas’s deposition, counsel for Plastic asked Mr. Haas to walk

through the analysis and conclusions contained in his report. (*See* D.I. 242 Ex. B at 185-86) Mr. Haas proceeded to do so, in testimony that fills seven transcript pages. (*See id.* at 186-93) Donghee asserts that Mr. Haas provided the following three new analyses in support of his \$9 royalty rate: (1) the revenue associated with Mr. Haas's royalty base is \$100 per unit, (2) the royalty rate should be 9%, which is derived by doubling the 2.5% rate from the unconsummated license offer and adding it to the 4% royalty rate from a Donghee-Kautex license, and (3) the royalty rate should have a \$13 per unit royalty ceiling, which represents Plastic's per unit profit premium on an operating profit level. (*See* D.I. 220 at 15)

Mr. Haas, in supporting his \$9 per unit royalty opinion, testified that the appropriate royalty on a \$100 LFa fuel tank would be \$9, below the \$13 ceiling. (*See* D.I. 242 Ex. B at 191)¹ The 9% royalty rate is derived by doubling the 2.5% balancing rate provided in the 2009 Inergy slide deck and adding 4%, which is the rate in a license Donghee took from Kautex to use Kautex's NGFS technology (which is similar to the TSBM technology). (*See id.* at 188-89; D.I. 221 Ex. A at 10, 38-40)

The \$100 royalty base had not been disclosed in Mr. Haas's reports. But Mr. Haas explained his \$100 figure was based on an approximation of Ms. Holt's opinion in her rebuttal report, which provided that the royalty base was \$96.07. (*See* D.I. 242 Ex. B at 199, 219; D.I. 222 Ex. D at 33) The doubling calculation, 4% royalty rate, and \$13 profit figure were disclosed in Mr. Haas's opening report. (*See* D.I. 221 Ex. A at 38, 66-67; *id.* Ex. D at PO_00185935) At the deposition, Mr. Haas was permissibly expounding on figures and information he had already

¹Further, Plastic is withdrawing its allegations of infringement of the '228 patent, thereby reducing the requested total royalty rate by \$2 to \$7. (*See* Tr. at 70)

relied on and provided in his reports, and reacting to material contained in Ms. Holt's reports.

Therefore, Mr. Haas's deposition disclosures were not untimely.

Thus, for the reasons stated above, Donghee's *Daubert* motion will be granted in part and denied in part.

B. Donghee's Motion for Summary Judgment

Donghee moves for summary judgment of non-infringement of all of the asserted claims of the patents-in-suit.²

1. Parison Claims

Donghee argues that the accused product does not infringe the Parison Claims³ because it does not extrude a parison. (*See* D.I. 224 at 5) It is undisputed that Donghee's "manufacturing process begins by forcing plastic through a circular coextrusion head, and then feeding the plastic that exits the coextrusion head into a separate piece of equipment, referred to as a 'flat die' tool," and that once inside "the flat die, the molten plastic is 'cut' into two streams of plastic which are extruded as two sheets." (D.I. 224 at 6; D.I. 236 at 5) The parties' dispute centers on whether (1) the first piece of equipment, the "coextrusion head," is or has a die, and (2) the extruded parison may continue to be located in the second piece of equipment, the "flat die," and still be held to infringe. (D.I. 224 at 6; D.I. 236 at 5-6)

The Court construed "extruded parison of closed cross section" and "extruding a . . .

²The asserted claims are: 2, 3, 4, and 8 of the '921 patent; 39, 41, and 45 of the '812 patent; 11 and 14 of the '253 patent; 7, 9, and 13 of the '490 patent; 1, 13, 25, 27, and 33 of the '326 patent; and 1, 7, 9, and 15 of the '327 patent. Plastic previously asserted claims 2, 4, and 8 of the '228 patent but has dismissed those claims. (*See* D.I. 297)

³The Parison Claims include every asserted claim of the '921, '812, and '327 patents, as well as claim 2 of the '228 patent and claim 7 of the '490 patent.

parison” as “a tubular preform with a closed cross-section that has been forced through a die, and is cut or split as it exits the die or at some time thereafter.”⁴ (D.I. 199 at 5) The Court determined that “the patents specify that the ‘parison’ is cut in two as it leaves the die at the end of the extrusion head,” and so “this ‘parison’ cannot be strictly limited to a fully-formed tubular structure existing in its entirety outside the extrusion head/die.” (*Id.* at 6) The Court further determined that the splitting of the tubular preform does not occur “at any stage earlier than right as the previously tubular structure leaves the die/extrusion head,” so the term “should not include molten plastic (or a tubular preform) present inside the die/extrusion head.” (*Id.* at 7) Additionally, the Court determined that the die cannot be located just anywhere, because the “patents specify that the ‘die’ is located at the ‘extrusion head[’s]’ ‘lowest point.’” (*Id.* at 7 n.4)

Because the splitting does not occur “at any stage earlier than right as the previously tubular structure *leaves the die/extrusion head*” (*id.*) (emphasis added), the claim construction makes clear that whether the extrusion equipment consists of a single combined extrusion head with a die or a more complex extrusion head with a separate attached die, the splitting of the molten plastic must not occur inside any of the extrusion head/die equipment. Since, for the accused product, it is undisputed that “[t]he extruded plastic parison is [] cut in a separate ‘flat die’ tool after it leaves Donghee’s coextrusion die” (D.I. 236 at 6; *see also* Tr. at 8, 13, 17-18), there is no genuine issue of fact that Donghee’s accused product does not literally infringe the Parison Claims.

Donghee also moves for summary judgment of no infringement under the doctrine of

⁴The Court finds, and Plastic does not dispute, that the Court’s claim construction also applies to “extruding a single parison” in claim 7 of the ‘490 patent.

equivalents. A product or process may infringe under the doctrine of equivalents “if there is ‘equivalence’ between the elements of the accused product or process and the claimed elements of the patented invention.” *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 21 (1997) (citing *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 609 (1950)). “A finding of infringement under the doctrine of equivalents requires a showing that the difference between the claimed invention and the accused product or method was insubstantial or that the accused product or method performs the substantially same function in substantially the same way with substantially the same result as each claim limitation of the patented product or method.” *AquaTex Indus., Inc. v. Techniche Sols.*, 479 F.3d 1320, 1326 (Fed. Cir. 2007). “An analysis of the role played by each element in the context of the specific patent claim will thus inform the inquiry as to whether a substitute element matches the function, way, and result of the claimed element.” *Warner-Jenkinson*, 520 U.S. at 40.

The Court concludes that Donghee’s accused product does not infringe under the doctrine of equivalents. Even taking the evidence in the light most favorable to Plastic, and resolving all disputed facts in its favor, a reasonable jury could not find cutting the parison while it is extruding within extrusion equipment is insubstantially different than cutting the extruded parison outside the extrusion equipment. Additionally, Plastic’s expert, Dr. Osswald, acknowledges differences between Donghee’s flat die tool and the patented invention. (*See, e.g.*, D.I. 225 Ex. B at 18; *id.* Ex. C at 164)

This portion of the summary judgment motion will be granted.

2. “Interface” Limitation of ’253 Patent

The asserted claims of the ’253 patent depend on independent claim 1, which requires the

step of “closing said mould in a way which eliminates any interface between said at least one of said accessory or said duct and an external atmosphere outside of the hollow body.” (’253 patent, cl. 1) It is undisputed that “[d]uring the manufacture of Donghee’s fuel tank, a bundle of components consisting of two valves and an orange ‘piercing nipple’ connected to each other by hollow tubing is installed inside the tank.” (D.I. 224 at 9) It is further undisputed that while the two valves are attached without piercing the tank wall, the orange piercing nipple is attached by boring a hole in the tank wall. (*See id.* at 10; D.I. 236 at 3, 15; D.I. 258 at 4; Tr. at 28) Therefore, Plastic does not dispute that “there is an interface between the external atmosphere and the nipple.” (D.I. 236 at 15) The dispute here is whether the two valves and the hollow tubing interface with the external atmosphere.

Donghee argues that since there is a direct air path between the valves and the external atmosphere through the hollow tubing, its product does not infringe. (*See* D.I. 224 at 10) Plastic counters that “the claimed ‘interface’ is referring to the internally-mounted component[’]s point of attachment.” (D.I. 236 at 14) In other words, “even if something else at another location pierces the tank[’s] wall,” there can still be infringement if the accessory itself is attached without poking through the tank’s wall. (*Id.*)

The Court agrees with Plastic. Since the two valves “never penetrate the tank’s wall and are attached at locations separate from the nipple,” “there is no interface between the external atmosphere and either valve,” even though the nipple does pierce the wall. (*Id.* at 15) The patent claims the attachment of accessories inside the tank without poking holes in the tank’s wall. In the accused product, the valves may be found to be separate accessories that are attached without poking holes in the tank’s wall. The fact that the valves are connected to

hollow tubes that are ultimately connected to the external atmosphere does not necessarily mean that each accessory was *attached* by poking a hole in the tank's wall.

The Court disagrees with Donghee's contention that the claim's use of "any" before "interface" precludes a finding of infringement. (D.I. 258 at 5) The claim provides that the "external atmosphere" is "outside of the hollow body." The phrase "outside of the hollow body" specifies that the interface must be with atmosphere outside of the tank, not inside hollow tubes within the tank. *See Cat Tech LLC v. TubeMaster, Inc.*, 528 F.3d 871, 885 (Fed. Cir. 2008) ("Claims are interpreted with an eye toward giving effect to all terms in the claim."); *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950-51 (Fed. Cir. 2006) (refusing to allow patentee to argue characteristics specifically described in claim were merely "superfluous").

The Court is not persuaded that summary judgment is appropriate with respect to the "interface" limitation.

3. "Preassembled Structure" Limitation of '253 Patent

The asserted claims of the '253 patent depend on independent claim 1, which requires that "said at least one of said accessory or said duct is supported by a preassembled structure which comprises at least one device configured to anchor said preassembled structure to an internal wall of the hollow body." ('253 patent, cl. 1) The Court construed "preassembled structure" as "a set of multiple parts previously joined into a single arrangement that is capable of attachment to at least one accessory." (D.I. 199 at 11) In doing so, the Court noted that the "preassembled structure" is "a structural feature comprising at least two parts, which is initially distinct from the accessory or accessories that it 'supports' and can then be joined with the relevant accessor(ies)." (*Id.* at 11)

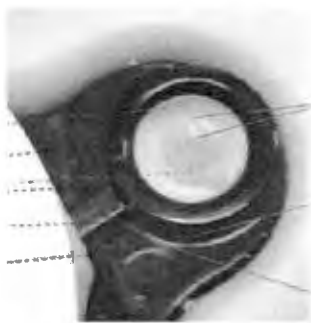
The preassembled structure accused of infringing is a black mounting bracket and white adapter, which is coupled to, and supports, a separate valve assembly accessory. (See D.I. 224 at 12; D.I. 236 at 16) Donghee argues that the Court’s construction requires that the mounting bracket and adapter must be “previously [in time] joined” “before they are attached to the valve assembly accessory.” (D.I. 224 at 13; *see also* Tr. at 21) In its opposition brief, Plastic responded that “Donghee is importing an improper temporal limitation into the term ‘preassembled structure,’” when the claim language provides “a structural limitation and not a sequential order of method steps.” (D.I. 236 at 15-16) However, at the hearing, Plastic conceded that the claims do contain a temporal limitation, contending now that all that is required is that the components of the preassembled structure and the accessory to which it attaches are all preassembled, in whatever order, *before* being attached to the fuel tank wall. (See Tr. at 23-26) Plastic argues there is nothing in the patent or the Court’s construction that “would require Plastic [] to prove the sequence in which the above structure is manufactured.” (D.I. 236 at 16)

The Court disagrees with Plastic. The construction of “preassembled structure” requires that the parts of the preassembled structure are “*previously* joined into a single arrangement” such that they are “*initially* distinct” from the accessory and that the single arrangement is only *then* “capable of attachment to at least one accessory.” (D.I. 199 at 11) (emphasis added) The Court’s construction contains a temporal limitation, but the record does not contain evidence of the attachment order of the parts before being attached to the fuel tank’s wall. Hence, no reasonable jury could find infringement and the Court will grant summary judgment on this dispute.

4. Concave and Convex Relief in '490 Patent

The asserted claims of the '490 patent depend from independent claim 1, which requires that “the snap-riveting orifice is at least partially surrounded by a concave relief that protrudes towards an inside of the tank into which a convex relief of the tool presses in order to force the material through the orifice, the convex relief of the tool comprising a counterform to mould an upper part of the rivet.” ('490 patent, cl. 1) Donghee argues that its product does not infringe for three reasons: (1) the accessory's orifice is not surrounded by concave relief, (2) the tool does not have convex relief that presses into the accessory's concave relief, and (3) the convex relief of the tool does not comprise a counterform. (*See* D.I. 224 at 17)

As noted, Donghee contends that the snap-riveting orifice is not surrounded by a concave relief. (*See id.* at 18-19; D.I. 258 at 9-10) The patent defines “concave” as “a hollow shape without a cover, the base of which is formed by the part of the accessory surrounding the orifice or orifices and which is pointing towards the inside of the tank.” ('490 patent at 3:62-66) Donghee insists that the accused product's orifice is not “surrounded by a concave relief that protrudes towards an inside of the tank,” as the snap-riveting tab does not comprise a base that surrounds the orifice. (*See* D.I. 224 at 19; D.I. 258 at 9-10) As shown in red in the below figure, Plastic's expert, Dr. Osswald, explains that “the concave relief in the ROV support bracket is located outside the ridge or plateau that surrounds the snap-riveting orifice.” (D.I. 225 Ex. A at 92)



Plastic asserts that Donghee is incorrect in arguing that “the concave relief must be immediately adjacent to the orifice.” (D.I. 236 at 23) Essentially, it appears that Donghee is arguing that the concave relief must be within walls, whereas Plastic is arguing that the concave relief may be outside of the walls (or rivet, in Donghee’s product).

The Court agrees with Donghee. The patent defines “concave” as having a base that “is formed by the part of the accessory surrounding the orifice.” (’490 patent at 3:64-65) Hence, moving outward from the center of the orifice, there must be orifice, then base material of the accessory’s fastening tab, then some sort of raised wall, ridge, or lip – rather than orifice, then wall or ridge, and then base material. The record does not permit a reasonable juror to find that Donghee’s accused product meets these requirements. Accordingly, the Court will grant summary judgment of non-infringement of the ’490 patent.⁵

5. “Orifice” Limitation in ’326 Patent

Claim 1, from which claim 13 depends, requires that “the accessory has a wall portion which is equipped with at least one orifice which passes through the wall portion of the accessory.” (’326 patent, cl. 1) The specification defines an “accessory” as “any object or

⁵Given the Court’s conclusion, it is unnecessary for the Court to address the two other bases for summary judgment of non-infringement that have been pressed by Donghee.

functional device generally associated with the fuel tank in its conventional mode of use or of operation and which collaborates therewith in order to perform certain useful functions; *or a support for one or several of such devices.*” (*Id.* at 3:5-10) (emphasis added)

Donghee argues that it cannot be found to infringe claims 1 and 13 of the '326 patent because Plastic cannot show that in its accused product its orifice exists in the accessory itself rather than in the support for the accessory. (*See* D.I. 224 at 23) Plastic acknowledges that Donghee’s orifices are in the support for the accessory rather than in the accessories themselves. But it contends that the patentee was its own lexicographer, clearly setting forth a definition of “accessory” that includes “support.” (D.I. 236 at 26) (citing *Jack Guttman, Inc. v. Kopykake Enters.*, 302 F.3d 1352, 1360-61 (Fed. Cir. 2002))

The Court agrees with Plastic. Even Donghee concedes that the patentee was its own lexicographer in defining “accessory.” (*See* Tr. at 46) This lexicography governs, notwithstanding Donghee’s suggestion that the claims can use a term in a different manner than the express definition it was given in the specification by the patentee. Even if some redundancy results, a patentee is permitted to be its own lexicographer, and when it does the Court must construe claim terms consistent with the patentee’s express definition. Based on that lexicography, a reasonable factfinder, taking the evidence in the light most favorable to Plastic, could find infringement. Accordingly, summary judgment is not warranted.

6. Outer Layer Protruding Through Orifice in '326 Patent

Claims 25, 27, and 33 of the '326 patent require that “the wall of the fuel tank comprises an outer layer of thermoplastic polymer and a barrier layer of thermoplastic resin impermeable to fuel” and that “some of the thermoplastic polymer of the outer layer and some of the barrier layer

of the fuel tank wall [are] forced in the molten state into and through the at least one orifice.” ('326 patent, cl. 25) The parties do not dispute that Donghee's fuel tank wall consists of six layers, as shown below:



It is undisputed that the HDPE and HDPE Regrind layers are thermoplastic polymer layers and that the EVOH layer is a fuel-impermeable barrier layer. (See D.I. 236 at 27) It is further undisputed that at least some of the barrier layer and at least some of the HDPE Regrind layer enter the orifice. (See D.I. 224 at 24; D.I. 236 at 27) The central dispute is whether the “outer layer” is the HDPE Regrind layer, the HDPE layer, or both.

Plastic argues that “Donghee's tank is made from a tripartite HDPE-EVOH-HDPE layered structure,” so that the “outer layer of thermoplastic polymer” is either a single layer “made from *both* HDPE regrind and pure HDPE” or “*any layer on the outside* of the EVOH.” (D.I. 236 at 27) (emphasis added) Donghee counters that the “outer layer of thermoplastic polymer” must be the “outside” or outermost layer only and that the pure HDPE layer is “compositionally distinct” from the HDPE Regrind layer, so there is no infringement. (D.I. 224 at 24; D.I. 258 at 12)

The Court agrees with Plastic that “there is a genuine issue of material fact as to whether one of ordinary skill in the art would consider the HDPE regrind and final HDPE la[y]er to be a

single outer layer or multiple, discrete outer layers of plastic.” (D.I. 236 at 27-28) Accordingly, the Court will deny summary judgment of non-infringement on claims 25, 27, and 33 of the ’326 patent.

7. Willful Infringement

Plastic has alleged that Donghee’s infringement is willful. As the Court will be entering summary judgment of non-infringement on all patents other than the ’326 patent, the Court will consider willfulness only with respect to the ’326 patent. Donghee moves for summary judgment of no willful infringement.

Willfulness may be found when a party shows, by a preponderance of the evidence, that an infringer has engaged in conduct that is “willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or . . . characteristic of a pirate.” *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1932 (2016). A patentee need only prove “subjective willfulness alone – i.e., proof that the defendant acted despite a risk of infringement that was ‘either known or so obvious that it should have been known to the accused infringer.’” *WesternGeco L.L.C. v. ION Geophysical Corp.*, 837 F.3d 1358, 1362 (Fed. Cir. 2016) (quoting *Halo*, 136 S. Ct. at 1930). “[C]ulpability is generally measured against the knowledge of the actor at the time of the challenged conduct.” *Halo*, 136 S. Ct. at 1933.

Drawing all reasonable inferences in favor of Plastic, the Court concludes that a reasonable factfinder could not find that Donghee engaged in the type of egregious conduct to permit a finding of willful infringement, even taking the evidence in the light most favorable to Plastic.

On May 18, 2016, Plastic informed Donghee that the ’326 patent was pending before the

PTO; on July 27, 2016, Donghee learned that the patent had issued the day before. (*See* D.I. 225 Ex. P at 10) It is undisputed that Donghee had knowledge of the patent as of July 27, 2016.

About one month later, on August 24, 2016, Plastic first asserted infringement of the '326 patent, when it filed its Amended Complaint. (*See* D.I. 14) Less than a month of pre-suit conduct had occurred. Plastic alleges that, during that month, Donghee willfully infringed the '326 patent by failing to engage in a process to design around the patent, knowing that Kautex had already taken a license to the '326 patent's parent patent. (*See* Tr. at 54; D.I. 236 at 29) This is not sufficient to constitute willful infringement. *See, e.g., Ansell Healthcare Prods. LLC v. Reckitt Benckiser LLC*, 2018 WL 620968, at *6 (D. Del. Jan. 30, 2018) (“[P]re-suit knowledge of the patent is not by itself sufficient to find ‘willful misconduct.’ . . . Rather, the patentee must identify evidence beyond pre-suit knowledge of the patent to show that the accused infringer’s infringement is ‘egregious,’ ‘deliberate,’ or ‘wanton.’”); *Finjan, Inc. v. Cisco Sys. Inc.*, 2017 WL 2462423, at *5 (N.D. Cal. June 7, 2017) (dismissing claim for willful infringement where behavior was not egregious); *Continental Circuits LLC v. Intel Corp.*, 2017 WL 679116, at *11 (D. Ariz. Feb. 21, 2017) (“After *Halo*, egregiousness is the touchstone of the willfulness inquiry.”).

Plastic’s allegations relating to post-suit conduct – Donghee’s 2016 and 2017 sales of the Lfa fuel tank and preparations for future fuel tank sales (D.I. 236 at 32) – are also insufficient. Plastic did not seek a preliminary injunction and Donghee has asserted reasonable defenses. *See, e.g., Radware, Ltd. v. F5 Networks, Inc.*, 2016 WL 4427490, at *6 (N.D. Cal. Aug. 22, 2016) (concluding “since [patentee] did not seek a preliminary injunction, it is not entitled to a finding of willfulness based solely on [the defendant’s] post-complaint infringement”). There is no

evidence of record from which a reasonable jury could find egregious conduct.

Accordingly, the Court will grant Donghee's motion for summary judgment of no willful infringement.

IV. CONCLUSION

For the reasons stated, Donghee's *Daubert* motion and summary judgment motion will be granted in part and denied in part. An appropriate Order follows.

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

PLASTIC OMNIUM ADVANCED
INNOVATION AND RESEARCH,

Plaintiff,

v.

DONGHEE AMERICA, INC. and
DONGHEE ALABAMA, LLC,

Defendants.

C.A. No. 16-187-LPS

ORDER

At Wilmington, this **22nd** day of **May, 2018**:

For the reasons set forth in the Memorandum Opinion issued this date, **IT IS HEREBY ORDERED** that:

1. Donghee's *Daubert* motion to exclude the testimony of David A. Haas (D.I. 219) is **GRANTED IN PART** and **DENIED IN PART**.

2. Donghee's motion for summary judgment of non-infringement (D.I. 223) is **GRANTED** as to the '921, '812, '327, '253, and '490 patents and **DENIED** as to the '326 patent. It is further **DENIED** as to the asserted claims of the '228 patent based on the parties' stipulated dismissal of that patent.

3. Donghee's motion for summary judgment of no willful infringement is **GRANTED** as to the '921, '812, '327, '253, '490, and '326 patents and **DENIED** as to the '228 patent based on the parties' stipulated dismissal of that patent.

4. The parties shall meet and confer and, no later than **May 24**, submit a joint status report, indicating (in addition to anything else they wish the Court to know): (i) whether they still

request that the Court resolve one or more additional claim construction disputes that have recently been briefed (*see* D.I. 294, 300, 301, 305, 306); and (ii) how today's decision impacts matters presented in the proposed pretrial order filed yesterday.


UNITED STATES DISTRICT JUDGE