UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

TERRIE BANHAZL d/b/a Heirloom Ceramics,	*	
Plaintiff,	*	
v.	*	Civil Action No. 16-cv-10791-ADB
THE AMERICAN CERAMIC SOCIETY,	*	
Defendant.	*	

FINDINGS OF FACT AND CONCLUSIONS OF LAW

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BURROUGHS, D.J.

I. INTRODUCTION

Plaintiff Terrie Banhazl ("Plaintiff") brings this action against Defendant The American Ceramic Society ("Defendant"), alleging that it directly and indirectly infringed U.S. Patent No. 7,622,237 ("the '237 patent") (Count I).[1,2] [ECF No. 128 (Second Amended Complaint ("SAC"))]. Defendant asserts counterclaims of invalidity (Counterclaim Count I), non-infringement (Counterclaim Count II), and unenforceability due to Plaintiff's delay in bringing suit (Counterclaim Count III). [ECF No. 131 (First Amended Answer)].

II. PROCEDURAL HISTORY

On April 28, 2016, Plaintiff filed suit against Defendant, [ECF No. 1], and then filed her first amended complaint on September 6, 2016, [ECF No. 13]. On September 20, 2016, Defendant filed its answer to the amended complaint and its counterclaims. [ECF No. 15]. Plaintiff answered the counterclaim complaint on September 27, 2016. [ECF No. 16].

After briefing and a hearing, the Court entered its claim construction order on July 26, 2019, which construed eight disputed terms in the '237 patent. [ECF No. 46]. Defendant then moved for summary judgment on the theory that Plaintiff would be unable to prove infringement. [ECF No. 64]. The Court denied the motion on March 5, 2021. [ECF No. 71].

As the case moved toward trial, Defendant sought a pretrial ruling that Plaintiff could not prove infringement because of Defendant's responses to Plaintiff's requests for admission, and a

[1] Plaintiff's initial complaint named two other defendants, Justin Rothshank, a ceramic decal artist, and Bel Inc., a company selling decal paper. See [ECF No. 1 ¶¶ 26–39; ECF No. 128 at 1 n.1]. Plaintiff settled her claims against both of these defendants and they have since been dismissed from the case. See [ECF Nos. 7, 8].

[2] Although the SAC does not label this claim, for ease of reference the Court will refer to Plaintiff's infringement claim as Count I.

2004 post on an internet discussion group which allegedly recites the process disclosed in the '237 patent. [ECF No. 121]. The Court denied Defendant's request on November 1, 2021. [ECF No. 123].

After the parties filed amended pleadings, [SAC, ECF No. 131, ECF No. 133], the case proceeded to trial on Count I and on Counterclaim Counts I, II, and III. A nine-day trial took place between November 15 and December 9, 2021. [ECF Nos. 135–36, 138–41, 143, 145–46]. The Court heard testimony from six witnesses. [Id.]. After closings, the parties submitted proposed findings of fact and conclusions of law. [ECF Nos. 164, 165].

Having considered the evidence presented at trial and the parties' post-trial submissions, the Court makes the following findings of fact and conclusions of law pursuant to Federal Rule of Civil Procedure 52(a).

III. FINDINGS OF FACT

A. The Parties

Plaintiff is a ceramist that has practiced and been involved in the ceramic arts for several decades. [Nov. 15 Tr. 5:20–6:21]. Defendant is a non-profit organization that caters to the ceramic community. [Dec. 6 Tr. 901:17–18]. The organization is divided into two parts: an art side focused on ceramic arts and creativity, and a science side with a mission related to the scientific uses of ceramics. [Dec. 6 Tr. 770:16–19]. Defendant's art side publishes two magazines, Ceramics Monthly ("CM") and Pottery Making Illustrated ("PMI"). [Dec. 6 Tr. 770:12–15]. It also publishes books, produces videos, operates a video streaming service called Clayflicks, maintains a website called the Ceramic Arts Network that publishes a blog and newsletters, and hosts conferences and workshops through its International Ceramic Arts Network. [Nov. 16 Tr. 72:3–13; Dec. 6 Tr. 805:16–808:8, 864:23–25, 874:11–13, 876:7–15]. Defendant's art side earns income through subscriptions, advertising, membership fees, and

product sales, but it does not earn income through practicing any particular ceramic technique. [Dec. 6 Tr. 771:8–13].

B. The '237 Patent, Prosecution History, and Claim Construction

Plaintiff is the inventor on the '237 patent, which is titled "System, Apparatus, and Method for the Permanent Transfer of Images onto Glossy Surfaces." [Ex. 21 at 1]. Plaintiff filed the application that led to the issuance of the '237 patent on September 26, 2006. [Id. at 1]. The '237 patent explains that the invention

> relates to systems and methods for transferring high quality two-dimensional images permanently onto kiln fire able glossy substrates by printing on a film covered transfer agent using toner containing iron oxide. The ability to easily, economically and safely apply one of a kind high quality photographic images onto a transfer agent and permanently affix these images on to functional kiln fire able ceramic or glass surfaces without specialty manufacturing equipment, potentially toxic cover-coats or specialized training, has heretofore been impossible.

[Id. at Col. 1, Lns. 17–26]. The patent discloses nine claims, two independent claims and seven dependent claims. [Id. at Claims 1–9]. Independent claim 1 of the patent is directed to:

> [a] method of permanently transferring an image to a substrate having a glossy surface, including: providing a sheet of film-covered transfer paper having the image printed on the film side of the transfer paper, wherein the image is printed with an iron-oxide based toner; transferring the film to the glossy surface; and heating the substrate with the film to a temperature sufficient to evaporate the film and to embed the image into the glossy surface.

[Id. at Claim 1].

Dependent claims 2–7 claim:

> 2. The method of claim 1, wherein the temperature is at least 1000 degrees Fahrenheit.
> 3. The method of claim 1, wherein the glossy surface is a glass.
> 4. The method of claim 1, wherein the glossy surface is a ceramic glaze.
> 5. The method of claim 1, wherein the substrate is a ceramic.
> 6. The method of claim 1, wherein the step of providing the transfer paper includes printing the image on the film side of the transfer paper with a laser printing device.
> 7. The method of claim 1, wherein transferring the film includes wetting the transfer paper and sliding the film onto the glossy surface.

[Id. at Claims 2–7].

> Independent claim 8 is directed to:
>
> [a] [method] of permanently transferring an image to a substrate having a glossy surface, including: printing the image onto the film side of a sheet of transfer paper using a laser printing device using an iron-oxide based toner; transferring the film with the image onto the glossy surface; heating the substrate with the film to a temperature such that the film evaporates and the image embeds into the glossy surface.

[Id. at Claim 8].

> Finally, dependent claim 9 claims:
>
> The method of claim 8, wherein the glossy surface is one of a glass or a ceramic glaze.

[Id. at Claim 9].

Before the patent issued, the U.S. Patent and Trademark Office ("USPTO") initially rejected some of the proposed claims in the patent application. [Ex. 20 at 70–76]. In relevant part, the patent application originally claimed a method for "permanently affixing images onto glossy substrates using off the shelf equipment and supplies . . . wherein the said glossy substrate is comprised of an object which is capable of being fired in a kiln." [Ex. 20 at 102]. The USPTO was concerned with the proposed claims' use of "capable of being fired in a kiln" because, depending on the circumstances, anything is capable of being fired in a kiln. [Ex. 20 at 72]. The patent examiner also identified several prior art processes that disclosed the process as initially claimed. [Id. at 72–73]. In response, Plaintiff amended her claims to state that "heating the substrate with the film **to a temperature sufficient to evaporate the film and to embed the image into the glossy surface**." [Ex. 20 at 55 (emphasis added)]. Plaintiff testified that her understanding was that all of the prior art referenced by the patent examiner related to processes that took place at lower temperatures than her claimed process and that her amendment would

distinguish her process from these low-temperature prior art processes. [Nov. 15 Tr. 57:8–22]. The USPTO accepted the revised claims and the patent issued. [Ex. 20 at 7].

As part of this litigation, the Court construed eight terms used in the claims. The Court's adopted construction of the terms is summarized below:

Disputed Claim Term	Court's Adopted Construction
"Permanently"	Preamble is limiting. In a way that exists or remains unchanged for the life of the substrate.
"Glossy surface/substrate having a glossy surface"	Plain and ordinary meaning, or the outside of a glazed ceramic piece fired in a kiln or a glass object.
"Film covered transfer paper" or "transfer paper"	Decal paper that is pre-coated with a film and acts as a transfer agent; also referred to as water slide decal paper.
"Having the image printed" or "image is printed"	Reproduce an image using a printer or photocopier.
"Transferring the film to the glossy surface" or "transferring the film with the image onto the glossy surface"	"Transferring . . . to" or "transferring. . . onto:" plain and ordinary meaning. "Film:" decal paper that is pre-coated with a film and acts as a transfer agent; also referred to as water slide decal paper. "Image:" plain and ordinary meaning. "Glossy surface:" plain and ordinary meaning, or the outside of a glazed ceramic piece fired in a kiln or a glass object.
"Evaporate"	To change a material into gas, including any predecessor melting phase.
"Embed(s)"	Plain and ordinary meaning, or sink into.
"Laser printing device"	A black and white laser printer or photocopier.

[ECF No. 46 at 24]. As part of its claim construction order, the Court found that a person of ordinary skill in the art (the "POSITA") covered by the '237 patent is someone "who has at least five years of experience making ceramics and has familiarity with the tools and materials

commonly used in ceramics, including clays, glazes, and the use of a kiln." [Id. at 5]. During summary judgment, Defendant asserted the theory that Plaintiff could not establish infringement because the film used to transfer an image to a substrate using the '237 process does not evaporate when heated, but instead burns. [ECF No. 64-1 at 13–14]. The Court rejected this argument because Defendant was attempting to reconstrue the term "evaporation" in a way that was inconsistent with the Court's construction. [ECF No. 71 at 12].

C. The Prior Art Processes

Plaintiff's inspiration for the method disclosed in the '237 patent stemmed from her desire to create a memorable gift for her mother's birthday. [Nov. 15 Tr. 10:19–11:15]. She wanted to transfer an image of a favorite family recipe and family photos onto a ceramic platter. [Id.]. After researching the existing processes for transferring an image onto a ceramic object, Plaintiff determined that a process that would consistently and safely produce an exact reproduction of the recipe and photos onto the platter did not seem to exist. Plaintiff testified about the three different processes that she explored, which were available to ceramists at that time: (1) screen printing, (2) retrofitted printers that use ceramic pigments, and (3) iron oxide decals from off-the-shelf laser printers. [Nov. 15 Tr. 13:24–14:2]. These three processes are described in the '237 patent's specification. [Ex. 21].

First, the screen-printing method is a multi-step process requiring ceramists to use a stencil and apply ink using a squeegee, screen, and other tools. [Nov. 15 Tr. 14:9–24]. Plaintiff testified that this method was unsatisfactory because it required expensive supplies, used toxic chemicals that were not food safe, and was a complicated process that did not result in a crisp image transfer. [Nov. 15 Tr. 14:6–17:4]. Second, the retrofitted-printer method involved replacing a printer's standard inks and toners with ceramic pigment. [Nov. 15 Tr. 17:5–8].

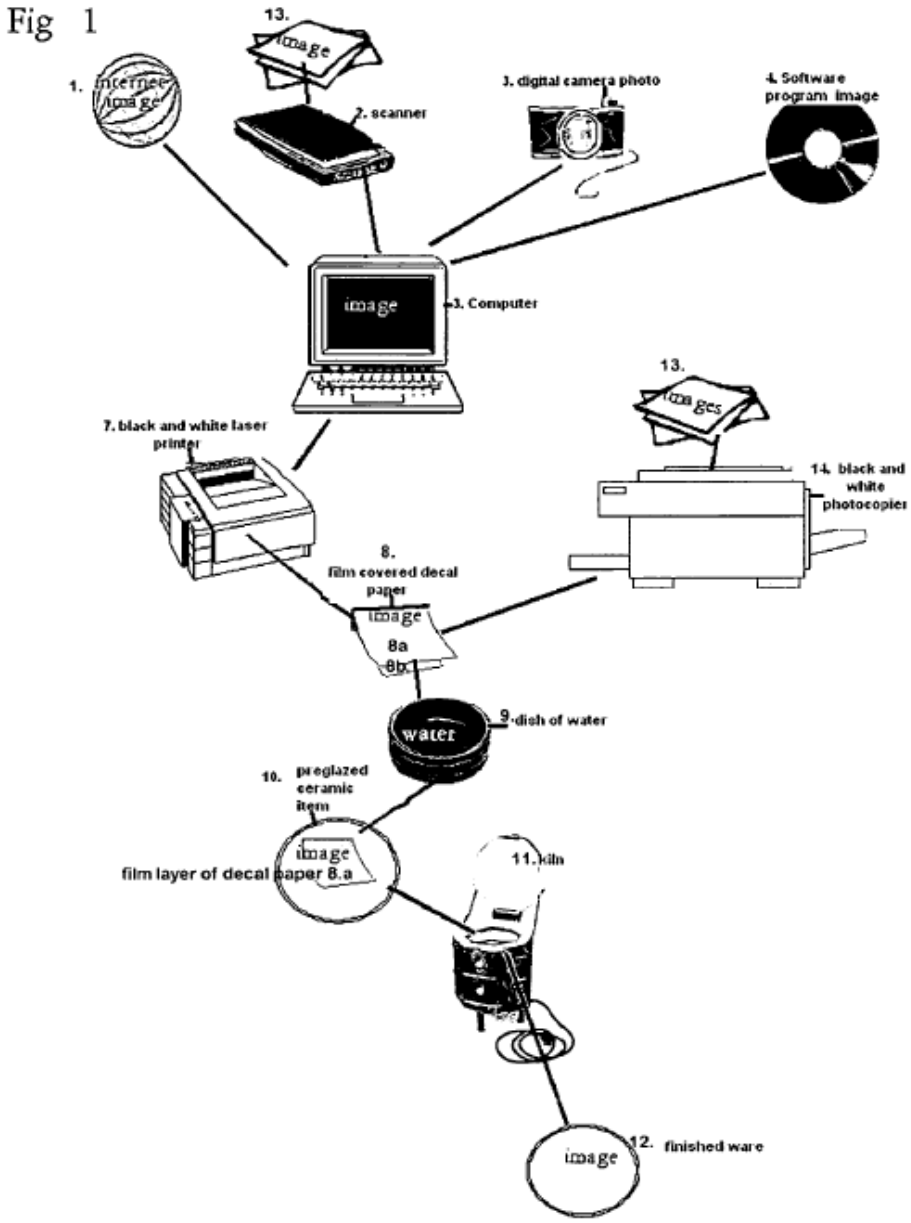
Again, the process was not suitable for Plaintiff's purpose because it was very expensive, involved toxic chemicals, and was not food safe. [Nov. 15 Tr. 17:9–22]. Finally, the iron-oxide-decal method that Plaintiff experimented with used monochromatic (*i.e.*, black only) printers with iron-oxide based toner to print an image onto paper. [Nov. 15 Tr. 18:17–26:17, 47:20–48:2]. The image would then be covered in a lacquer covercoat, transferred to a ceramic surface so that the image makes direct contact with the ceramic, and fired in a kiln. [Tr. 18:17–26:17, 47:20–48:2; Ex. 21 at Col. 2, Lns. 15–26]. This process was disclosed in U.K. Patent GB 2151189 B (the "Blow patent") and was also described by ceramist Les Lawrence on his website. [Nov. 15 Tr. 18:17–26:17, 47:20–48:2; Ex. 91]. Plaintiff testified that this process was unsatisfactory because it resulted in inconsistent image quality and the covercoat she had to apply used toxic chemicals. [Nov. 15 Tr. 25:5–26:7].

D. The '237 Process

After testing the three methods described above, Plaintiff began experimenting to create a process that would overcome the problems with the prior art. She eventually discovered the '237 process. The key innovation in Plaintiff's method is the use of "film covered decal paper," also known as "pre-covercoated decal paper," "film covered transfer paper" or "water slide decal paper." [Nov. 15 Tr. 51:12–18]. This type of paper is manufactured with a thin film layer on top of the paper. [Id.]. Plaintiff discovered, and subsequently patented, a process where an image is printed directly onto the film layer of the film covered decal paper using a monochromatic laser printer with iron-oxide toner. [Nov. 15 Tr. 52:23–53:6]. Then, after the decal paper is soaked in water and the paper layer removed, the film layer, which contains the printed image, is transferred to a glazed surface. [Nov. 15 Tr. 52:6–8]. Once transferred, the glazed ceramic is fired in a kiln, the film layer disappears during firing, and the image remains and fuses permanently to the glazed surface. See [Nov. 15 Tr. 51:12–21]. Because the image is fired just

hot enough to soften the glaze, the image sinks into the glazed surface. [Nov. 15 Tr. 55:1–5]. The resulting image is always a sepia tone because of the iron oxide in the toner. [Nov. 15 Tr. 55:6–9]. Because the paper used in Plaintiff's process is pre-coated with the film, a ceramist does not need to apply a separate toxic covercoat to create the decal, which was required by the prior art process disclosed by the Blow patent. See [Nov. 15 Tr. 51:5–18].

The '237 patent provides the below figure to illustrate the process:



[Ex. 21 at 2].

E. The '237 Patent Teaches a Novel and Counterintuitive Method

Plaintiff's '237 process is counterintuitive based on the prior art and the understanding in the field. First, it was unexpected that the image would survive the high temperature of the kiln while fired. It was believed that film covered decal paper would not result in an image transfer because the image was printed on top of the film and did not make direct contact with the glazed surface. [Nov. 15 Tr. 41:20–42:18, 51:11–52:3]. The understanding in the field at the time was that the image needed to be between the film and glazed surface, as with the Blow patent process. [Ex. 21 at Col. 2, Lns. 20–26; Nov. 15 Tr. 50:18–20]. Further, prior to Plaintiff's process, the film covered decal paper manufacturers warned against using their product in a kiln. [Nov. 15 Tr. 37:7–12; Ex. 104 at 2 ("Decal paper is NOT designed to be fired in a kiln or to withstand any other source of heat including microwave.")]. Second, as explained below, experts in the field warned against using film covered decal paper in monochromatic laser printing devices due to the risk that the thin film would melt during the printing process and cause damage to the equipment. [Ex. 4 at Banhazl0002295; Ex. 175 at ACS000327]. Through her testing, Plaintiff discovered that film covered decal paper could in fact be used in black-only laser printers because newer printers were more efficient and printed at cooler temperatures. [Nov. 15 Tr. 39:7–25].

At trial, the parties testified about the Potter's Dictionary by Frank and Janet Hamer, [Exs. 7, 174], and Ceramics and Print by Paul Scott, [Exs. 4, 175]. Defendant's expert, Mr. Richard Burkett, testified that, when combined, Ceramics and Print and the Potter's Dictionary taught the method disclosed in the '237 patent well before Plaintiff filed her patent application. [Dec. 8 Tr. 966:16–974:13]. As to the Potter's Dictionary, Mr. Burkett described it as "an amazingly encyclopedic bible of everything ceramic." [Dec. 8 Tr. 958:2–3]. He testified that it

"teaches the basics of using a decal" and "talks about pre-covercoated decals." [Dec. 8 Tr. 958:16–23]. He explained that the Potter's Dictionary states that "[p]re-covercoated decals can be bought. The ceramist then prints the image on to the film. The film will burn away from underneath the image without distorting it. Custom-made decals can be obtained giving the freedom to design without the fuss of making." [Dec. 8 Tr. 959:11–15]. In his opinion, the Potter's Dictionary teaches "placing an image on the film," but he acknowledged that it does not teach using a laser printer with iron-oxide toner. [Dec. 8 Tr. 960:7–13].

For Ceramics and Print, Mr. Burkett explained that the book provided "a complete survey of all the different methods of printing onto clay with imagery, type, text." [Dec. 8 Tr. 961:5–9]. He explained that Chapter 5 of the book describes various methods of making decals using devices like computers and photocopiers. [Dec. 8 Tr. 961:15–18]. In his view, Ceramics and Print described using film covered decal paper in a printer to make an iron-oxide decal. [Dec. 8 Tr. 963:24–965:22]. He pointed to the book's statement that "cover coated laser and photocopy prints, on the other hand, can be fired or fused to the glazed surface if fired high enough, but the resulting print is always monochromatic in sepia." [Dec. 8 Tr. 963:24–964:3]. He acknowledged that Ceramics and Print explicitly warned that when using film covered decal paper in a monochromatic laser printer or copier, "the fusing temperatures in these machines is in excess of the melting point of the Covercoat of these papers [and] serious damage to expensive hardware could be the outcome . . . of careless experimentation with these papers." [Dec. 8 Tr. 964:18–24; Ex. 4 at Banhazl0002295; Ex. 175 at ACS000327]. Mr. Burkett did not think this warning discouraged the use of film covered decal paper in a laser printer and instead opined that "[i]t's just a warning that that could happen. It's possible to print on those papers. They were obviously made for laser printing. And I'm sure copiers have probably been damaged. But at the

same time, careful experimentation is really the key to this whole process and much of ceramics." [Dec. 8 Tr. 965:1–5].

F. The Accused Media

Plaintiff identified 14 different publications by Defendant that she alleges infringed on claims 1–2 and 4–9 of the '237 patent (the "Accused Media"). The publications include three videos, one workshop, one newsletter, six articles from CM, PMI, and the Ceramic Arts Daily website, and three book chapters. [Exs. 105, 111, 114, 115, 116, 117, 118, 119, 120, 121, 122, 124, 125, 126]. They are:

	Publication	Title	Year of Initial Publication
1.	Ceramic Arts Daily Video	Ceramic Decals New Ideas and Techniques [Ex. 105]	2012
2.	Ceramic Arts Daily Video	The Graphic Pot: Hand Building & Surface Techniques [Ex. 111]	2013
3.	Potters Council Workshop	Engaging Ceramic Surfaces [Ex. 114]	2013
4.	Ceramic Arts Daily website free video	Applying Decals to Glazed Pottery and Ceramics [Ex. 115]	2011
5.	ACS' Potters Pages Newsletter, Vol. 14, Issue 2	In the Studio [Ex. 116]	2014
6.	Pottery Making Illustrated, November/December	Hand-coloring Photo Decals [Ex. 117]	2013
7.	Electric Kiln Book	Chapter: Laser Toner Decals [Ex. 118]	2015
8.	Image & Design Transfer Techniques Book	Chapter: Using Laser Toner Decals [Ex. 119]	2015
9.	Image & Design Transfer Techniques Book	Chapter: Newsprint Slip Transfers [Ex. 120]	2015

10	Ceramic Arts Daily Website Article	A Piece of Cake: Clay Applique Decoration on Functional Pottery [Ex. 121]	2011
11	Pottery Making Illustrated, September/October	Cover Article: Slippery When Wet [Ex. 122]	2011
12	Pottery Making Illustrated, March/April	Breaking the Rules: Pushing the Limits with Decals [Ex. 124]	2008
13	Pottery Making Illustrated, September/October	Supply Room Decalcomania [Ex. 125]	2006
14	Ceramics Monthly, June/July/August	Kari Radasch and the Sweetness of Discovery [Ex. 126]	2009

At trial, Plaintiff testified to her understanding that each of the Accused Media teaches each step of the '237 patent's asserted claims. A summary of Plaintiff's contentions that each of the Accused Media infringe claim 1 are found in Plaintiff's claim chart demonstratives. [Exs. II, LL, OO, QQ, SS, UU, WW, YY, ZZ, BBB, DDD, JJJ, MMM, OOO].[3]

In general, the majority of the Accused Media explicitly describe or show the process of printing an image onto the film side of film covered decal paper using iron-oxide toner (claim 1), with some explicitly mentioning using a laser printing device (claim 6, claim 8), [Exs. 105, 111, 114, 115, 117, 118, 119, 124, 125, 126], but some of the Accused Media do not explain or indicate that iron-oxide toner or film covered transfer paper must be used, [Exs. 116, 120, 121, 122]. The Accused Media also discuss transferring the printed image and film layer to a glazed, ceramic surface (claim 1, claim 4, claim 5, claim 8, claim 9), [Exs. 105, 111, 114, 115, 116, 117, 118, 119, 120, 121, 122, 124, 125, 126], and many explicitly state or show that the decal paper

[3] Although Plaintiff's claim charts do not list the limitations of claims 2 and 4–9, as described below, Plaintiff's testimony and the evidence in the record, including the copies of the Accused Media, allow the Court to analyze whether the Accused Media teach the limitations of these claims.

must be dampened with water and the film layer pulled away from the paper layer (claim 7), [Exs. 105, 111, 114, 115, 116, 117, 118, 119, 124, 125]. Finally, the Accused Media discuss firing the glazed ceramic with the image in a kiln at a temperature higher than 1000 degrees or a temperature that causes the film to disappear (claim 1, claim 2, claim 8), [Exs. 105, 111, 114, 115, 116, 117, 118, 119, 120, 121, 122, 124, 125, 126], and several show or comment on the embedded or permanent nature of the resulting image transfer (claim 1, claim 8), [Exs. 105, 111 (showing finished sepia image), 114, 115 (showing finished sepia image), 116, 118, 119, 124, 125, 126]. Plaintiff admitted that the Accused Media do not actually show a kiln being used, although she understood the use of a kiln to be inferred because the Accused Media show finished products. [Nov. 16 Tr. 86: 11–21, 98:2–11, 99:2–24].

At trial Plaintiff introduced documents relating to the production of two accused videos: (1) the Graphic Pot and (2) Ceramic Decals New Ideas and Techniques. [Exs. 106, 107, 112, 113]. In relevant part, contracts between Defendant and the ceramists featured in the videos provide that:

> **1. PRODUCER GRANTED**
> The Artist hereby grants, conveys, and assigns to the Producer any and all of the right, title, and interest in the Work and all revisions thereof. These rights include, but are not limited to, the right by itself or with others to produce, co-produce, translate, sell, and to reproduce, display, and transmit the Work, in whole, in English and all other languages, throughout the world, by any means and in any media or format now known or later developed. Producer also can license or permit others to do any of the aforementioned. Producer will preserve and record its copyright by any necessary means at its own expense and in its own name.
>
> Artist further grants, conveys, and assigns to Producer a non exclusive, irrevocable, worldwide license to use and grant to others the right to use, the Artist's name, voice and likeness in any and all media, both currently known and unknown, in conjunction with Artist's service hereunder, the Work and Producer's rights granted under this Agreement.

> **2. SCRIPT**
> The Artist agrees to prepare and submit a script for the Work, with the final script, including supporting materials, no later than the due date. . . . The Artist's submission shall be satisfactory to the Producer in organization, form, content, and style, and shall be accompanied by appropriate illustrative material, instructional aids, and necessary permissions to reproduce any previously copyrighted materials.
>
> If the Artist fails to deliver the script within the specified times, unless extended in writing by the Producer, or if the script as delivered is unsatisfactory to the Producer's sole but reasonable judgment, the Producer shall notify the Artist and give the Artist thirty (30) days to cure any identified defects. If the Artist fails to cure those defects after the thirty-day period has ended, the Producer shall have the right to terminate this Agreement immediately by notifying the Artist in writing, whereupon all rights in the Work shall revert to the Artist.
>
> [. . .]
>
> **18. INDEPENDENT CONTRACTOR.**
> The parties hereto are entering into this Agreement as independent contractors, and no partnership, joint venture, employment, or other association shall be deemed created by this Agreement between Artist and Producer.

[Exs. 106, 112]. Jennifer Harnetty, the editor of the Ceramic Arts Network and manager of Defendant's video program, testified about Defendant's video production process. [Dec. 6 Tr. 873:23–25, 876:7–885:23]. She explained that Defendant looks to produce videos of successful artists in the ceramics field. [Dec. 6 Tr. 876:21–25]. Defendant does not require artists to perform any specific process or create any specific artwork. [Dec. 6 Tr. 881:14–20]. Defendant also generally does not tell the artists what to put in the video scripts or how to present their work because it is the artist who is the most familiar with the process. [Dec. 6 Tr. 884:8–13].

G. Plaintiff's Commercial Endeavors and Awards

After applying for the patent, in April 2006 Plaintiff licensed her process to Coloramics, LLC, which was doing business as Mayco Colors ("Mayco"). [Nov. 15 Tr. 77:14–79:15; Exs. 22, 23]. Through this agreement, Mayco sold and marketed kits, called "Creative Images," which contained supplies for carrying out Plaintiff's process. [Nov. 15 Tr. 77:21–78:7; Ex. 23].

Through this agreement, Plaintiff received a $1 royalty for each sheet of decal paper sold in the Creative Images kits. [Exs. 22, 23]. The agreement terminated in 2009, while the patent application was still pending. [Nov. 15 Tr. 103:12–104:9; Nov. 16 Tr. 125:2–5]. Plaintiff testified that in her opinion the Creative Images product was not as successful as it could have been because Defendant infringed her process by publishing the Accused Media. [Nov. 15 Tr. 79:16–20]. Plaintiff also has a product that she sells through her company, Heirloom Ceramics, called Fired-On Images. See [Nov. 15 Tr. 84:18–24].

Several of Plaintiff's customers have won awards or enjoyed commercial and professional success by using her process. [Nov. 15 Tr. 80:6–82:7]. Plaintiff has also won awards herself, including two at the Society of Glass and Ceramic Decorators conference. [Nov. 15 Tr. 85:2–86:8].

H. Plaintiff's Communications with Defendant

Once Plaintiff perfected the '237 method, on January 26, 2005 she emailed Renee Fairchild, an employee at CM, to ask if CM's readers would be interested in learning about the technique. [Nov. 15 Tr. 44:12–45:9; Ex. 10]. Sherman Hall, CM's editor, responded a few days later saying that "a segment of our readership . . . would be interested in your technique" and asking if she would "share [her] technical process, recipes, etc." [Ex. 10].

After filing a provisional patent application in September 2005, [Ex. 21 at 1], Plaintiff contacted Defendant with a copy of an article she had written, titled "Good Old Fashioned High Tech," [Nov. 15 Tr. 96:1–9]. On March 31, 2006, Plaintiff received a rejection letter from Mr. Hall stating that CM would not publish her article. [Ex. 24]. On April 12, 2006, Bill Jones, editor of PMI, emailed Plaintiff stating that

> [w]e will be publishing an article on a decal transfer process in an upcoming issue. Can you send me a copy of your patent pending process or provide me with the ID

> number on file with the patent office? The process we will be publishing is one that has been around for many years and involves using laser printers and decal paper, so there should be no conflict. Ceramic decals made from laser printers, Xerox machines, etc, have been around for many years.

[Ex. 25]. Plaintiff responded with a copy of her provisional patent application, notified Mr. Jones of her product launch with Mayco, and attached a copy of the rejected "Good Old Fashioned High Tech" article with an offer to allow them to publish it. [Id.]. Mr. Jones responded that he would review the application and update Plaintiff about "anything [they] plan to publish" but noted that he was "sure [they were] just re-doing techniques in the public domain." [Id.]. In June 2006, Plaintiff followed up with Mr. Jones for more details about any laser-printed decal articles. [Ex. 26]. Mr. Jones responded with a draft of an article by artist Frank Gaydos that teaches a method for applying an iron-oxide decal printed on film covered decal paper to a glazed surface. [Id.]. Plaintiff responded with concerns, including that she was currently in a dispute with Mr. Gaydos regarding the process. [Id.]. Mr. Jones replied that he personally had been taught the process described in Mr. Gaydos's article in 2001 and that he believed that the process was disclosed in "Ceramics in Print," and various other places. [Id.]. After discovering that Mr. Gaydos' article had been published, Plaintiff reached out to Charlie Spahr, Defendant's president and publisher of PMI, on August 30, 2006 with her concerns and belief that the article was infringing and damaging to her upcoming product launch. [Ex. 27; Nov. 15 Tr. 100:7–9]. Mr. Spahr asked for more details about Plaintiff's allegations, which Plaintiff provided. [Ex. 27].

In March 2010, Plaintiff approached Mr. Jones at a ceramic arts conference to notify him that the '237 patent had issued. [Nov. 15 Tr. 105:23–106:6].

On March 12, 2012, Plaintiff emailed Mr. Spahr requesting that Defendant "honor the provisions" of the '237 patent and included a "partial list" of articles that she believed were

actively inducing infringement of her patent. [Ex. 32]. On April 9, 2012 Mr. Spahr sent a letter to Plaintiff stating that Defendant was aware that Plaintiff felt her patent had been infringed by the publication of certain articles but that "it was not [their] intention to take any action that could be construed to violate any person's protected right. While [they] are not certain that there was an actual infringement, [they] do not dispute the fact that [Plaintiff] feel[s her] rights were violated." [Id.]. Mr. Spahr then proposed a statement that could be included in the next edition of CM and PMI, which read

> In past editions we have published articles describing certain techniques for permanently affixing images onto glossy substrates through a face-up application of laser decals. It has come to our attention that [Plaintiff] is the holder of [the '237 patent] which provides her and/or her company Fired-On Images with certain rights under the process contained in [the '237 patent]. We apologize for this omission.

[Ex. 32]. The letter also proposed a disclaimer on all future articles "[d]ealing with face up decal application" that stated "[t]he Publisher advises the reader that certain applications onto glossy substrates may be subject to [the '237 patent]" and that also listed Heirloom Ceramics as a source of decal paper. [Id.]. In exchange for these actions, Defendant requested that Plaintiff sign a contract that "formally release[ed Defendant] for any violation of [her] patent rights." [Id.]. Plaintiff responded with a counterproposal, which included listing her company as the only source of decal paper to carry out the process and also promoting her company's products in subsequent publications. [Id]. Defendant declined to accept the counterproposal and it appears the release was never signed. [Id.].

IV. CONCLUSIONS OF LAW

For the reasons set forth below, the Court finds that the '237 patent is valid; Defendant did not directly infringe the '237 patent; Defendant indirectly infringed the '237 patent by inducing third-party customers to infringe the patented method; Defendant's infringement was

not willful; Plaintiff is entitled to **$161,939.52** in damages based upon the reasonable royalty rate; and Plaintiff is not entitled to her attorneys' fees.

The Court first addresses the Defendant's invalidity contentions (Counterclaim Count I) and then addresses the infringement claims (Count I, Counterclaim Count II, and Counterclaim Count III).

A. Counterclaim Count I: Declaratory Judgment that the '237 Patent is Invalid

Defendant asserts that the '237 patent is invalid because it (1) is obvious, (2) fails to satisfy the written description requirement, and (3) is not enabled. [ECF No. 165 at 37–57]. A patent is presumed to be valid once it is issued by the USPTO, therefore Defendant has the burden of proving the patent's invalidity by clear and convincing evidence. 35 U.S.C. § 282(a); Streck, Inc. v. Rsch. & Diagnostic Sys., Inc., 665 F.3d 1269, 1288 (Fed. Cir. 2012); Greenwood v. Hattori Seiko Co., Ltd., 900 F.2d 238, 240–41 (Fed. Cir. 1990).

1. Invalid as Obvious Under 35 U.S.C. § 103

A patent is invalid as obvious under 35 U.S.C. § 103 "if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains." 35 U.S.C. § 103. "[T]he test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art." In re Mouttet, 686 F.3d 1322, 1333 (Fed. Cir. 2012). The obviousness analysis also considers the Graham factors, which are "(1) the scope and content of the prior art; (2) the differences between the claimed invention and the prior art; (3) the level of ordinary skill in the art; and (4) any relevant secondary considerations, including commercial success, long felt but unsolved needs, failure of others, copying, and unexpected results."

Janssen Biotech v. Celltrion Healthcare Co., 2018 WL 10910845, *4 (D. Mass. July 30, 2018) (citing Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17–18 (1966)).

Defendant argues that the '237 patent is invalid as obvious due to the combination of The Potter's Dictionary and Ceramics and Print. [ECF No. 165 at 37–47]. It is undisputed, however, that Ceramics and Print contains an explicit warning about using film covered decal paper in monochromatic laser printers. [Ex. 4]. It states that

> [s]everal types of pre-coated decal paper are available from a number of manufacturers. These products are very specifically produced for particular methodologies and technologies, and experimentation with them outside their intended usage should only be undertake with extreme care [,]

[Ex. 4 at Banhazl0002294], and that users should

> [n]ever use UWET or Lazertran in mono laser copiers or mono photocopiers as the fusing temperatures in these machines is in excess of the melting point of the covercoat on these papers. Serious damage to expensive hardware could be the outcome of careless experimentation with these papers[,]

[Ex. 4 at Banhazl0002295]. Such an explicit warning against practicing one of the limitations in the '237 patent is a significant difference between Plaintiff's method and the prior art, and it directly undercuts Defendant's position that a POSITA would think to practice the claimed method. Plaintiff has also put forth significant evidence that the secondary considerations of non-obviousness described in the Graham factors weigh in her favor, including commercial success and industry praise enjoyed by the patent. Janssen Biotech, 2018 WL 10910845, *4. Plaintiff testified that established and successful artists use her process and that she has received awards. Further, the fact that the claimed method is successful despite Ceramics and Print's warning demonstrates that it produced an unexpected result that further counsels against finding that the patent is obvious. Accordingly, Defendant has failed to show by convincing evidence that a combination of the prior art renders the '237 patent obvious.

2. Invalidity for Lack of Written Description under 35 U.S.C. § 112

Defendant next argues that the '237 patent is invalid for lack of written description because its specification fails to support "1) the term 'glossy surface' and the scope of glazes captured by the claims; 2) permanent transfer of an image; and 3) a temperature sufficient to evaporate the film." [ECF No. 165 at 47].

Under 35 U.S.C. § 112, a patent's specification must "contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same . . . ." 35 U.S.C. § 112. "When determining whether a specification contains adequate written description, one must make an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art." Boston Sci. Corp. v. Johnson & Johnson, 647 F.3d 1353, 1366 (Fed. Cir. 2011) (internal quotation marks omitted). "The purpose of the written description requirement is to prevent an applicant from later asserting that he invented that which he did not; the applicant for a patent is therefore required to recount his invention in such detail that his future claims can be determined to be encompassed within his original creation." Inverness Med. Switzerland GmbH v. Acon Lab'ys, Inc., 323 F. Supp. 2d 227, 250 (D. Mass. 2004) (internal quotation marks omitted). Ultimately, "if the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." E.I. DuPont de Nemours & Co. v. Phillips Petroleum Co., 849 F.2d 1430, 1435 (Fed. Cir. 1988) (internal quotation marks and citation omitted).

First, Defendant asserts that the specification is much narrower than the claimed method because the asserted claims apply to all glaze types, while the specification provides only one example of the process being performed on a bisque earthenware plate coated with Mayco S2102 white gloss glaze. [ECF No. 165 at 49; Ex. 21 at Col. 5, Lns. 25–67]. This failure to list more than one glaze in the specification is not fatal. As the Federal Circuit explained

> [a] claim will not be invalidated on section 112 grounds simply because the embodiments of the specification do not contain examples explicitly covering the full scope of the claim language. That is because the patent specification is written for a person of skill in the art, and such a person comes to the patent with the knowledge of what has come before. Placed in that context, it is unnecessary to spell out every detail of the invention in the specification; only enough must be included to convince a person of skill in the art that the inventor possessed the invention . . . .

LizardTech, Inc. v. Earth Res. Mapping, Inc., 424 F.3d 1336, 1345 (Fed. Cir. 2005) (citations omitted). Plaintiff's testimony and the text of the specification supports the conclusion that, after reading the specification, a POSITA (*i.e.*, a hobbyist with five years of experience), [ECF No. 46 at 5], would understand (1) how to perform the '237 process generally, (2) that the process applies to glossy surfaces beyond the one glaze explained in the example, and (3) that the important step is that the firing temperature required to embed the image into the surface needs be lower than the initial temperature used to fire the glaze. [Dec. 9 Tr. 9-56:8–25]. Notably, the specification defines "glaze" to extend to coatings beyond the Mayco S2102 glaze used in the specific example. [Ex. 21 at Col. 4, Lns. 10–16]. Thus, regarding glossy surfaces, the specification "reasonably apprise[s] those skilled in the art both of the utilization and scope of the invention[.]" E.I. DuPont de Nemours & Co., 849 F.2d at 1435.

Second, Defendant asserts that the '237 patent does not adequately disclose "permanent" as construed by the Court because it fails to tell a POSITA how they would know that the method results in an image being permanently transferred to a glossy surface. [ECF No. 165 at

50–51]. The Court disagrees. The patent's specification sufficiently describes that, while performing the process, "[t]he original glaze covering of the plate softens during firing allowing the iron oxide pigment . . . to sink permanently into the plate's surface." [Ex. 21 at Col. 5, Lns. 60–63]. The specification also defines "Kiln Firing Temperatures" as "interior kiln temperatures that are high enough to allow glazes and iron oxide pigments to permanently affix to the selected substrate. The firing temperature of the transfer is often the same or slightly lower than the firing temperature of the original glaze coating of the glossy substrate so that the surface may soften just enough to allow the print to permanently sink in." [Id. at Col. 4, Lns. 44–51]. From this, a POSITA would understand that the patent is claiming a method that creates a permanent image and how such permanence is achieved.

Finally, Defendant argues that the claims require "a temperature sufficient to evaporate the film," but the patent specification fails to provide adequate support for a POSITA to understand how to heat a substrate to a sufficient temperature. [ECF No. 165 at 52]. During claim construction, the Court construed "evaporate" to mean "[t]o change a material into gas, including any predecessor melting phase." [ECF No. 46 at 18]. At summary judgment, the Court further clarified its construction that "Defendant has not persuaded the Court that a POSITA, as defined by this Court, would understand the claims or the invention to require the film to do anything more than disappear—whether through melting, evaporating, or burning (in whole or in part)—during heating at a high temperature." [ECF No. 71 at 12].

The specification explains that "[d]uring this firing process the decal's film layer, residual adhesives, and the polymer additives of the toner melt and or evaporate leaving just the iron oxide pigment of the print . . . ." [Ex. 21 at Col. 5, Lns. 54–59]. Given the explicit mention of evaporation and the description that the film must disappear, it is unclear how the

specification fails to disclose that evaporation is an element of the claimed method or fails to inform a POSITA that the invention requires that the film be heated to a high enough temperature so that it disappears and leaves behind the image. Therefore, Defendant has failed to show by clear and convincing evidence that the specification does not adequately describe evaporation as used in the claims.

3. Invalid for Lack of Enablement under 35 U.S.C. § 112

"Enablement is a legal determination of whether a patent enables one skilled in the art to make and use the claimed invention[.]" Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384 (Fed. Cir. 1986) (citation omitted). To meet the enablement requirement under 35 U.S.C. § 112, "the specification of a patent must 'teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation.'" Amgen Inc. v. Sanofi, 872 F.3d 1367, 1375 (Fed. Cir. 2017) (quoting Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (citation omitted)). Factors used to determine "undue experimentation" include

> (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988).

Defendant argues that the '237 patent requires undue experimentation because it fails to teach a POSITA how the process could apply to different ceramic substrates and glazes. [ECF No. 165 at 54–57]. Both Plaintiff and Mr. Burkett agree that there are thousands of different types of glazes that can be used with ceramic substrates. [Dec. 8 Tr. 942:14–944:1; Dec. 9 Tr. 9-54:17–22]. Mr. Burkett opined that each type of glaze may melt differently, have different firing ranges, and different flow rates. [Dec. 8 Tr. 976:8–978:21]. Despite the thousands of glazes

available, the '237 patent only discusses a white gloss glaze from Mayco, which Defendant argues demonstrates that the patent fails to provide sufficient direction to a POSITA, who would need to unduly experiment to find the proper firing temperature based on the substrate, glaze, and kiln being used. [ECF No. 165 at 57].

Defendant has failed to satisfy its burden to show that a POSITA would need to engage in undue experimentation, as opposed to routine experimentation. "Undue experimentation is a matter of degree. Even a considerable amount of experimentation is permissible, as long as it is merely routine or the specification provides a reasonable amount of guidance regarding the direction of experimentation." Wyeth & Cordis Corp. v. Abbott Lab'ys, 720 F.3d 1380, 1385–86 (Fed. Cir. 2013) (internal citations and quotation marks omitted). The POSITA here is a hobbyist with five years of experience and an understanding of the tools used in ceramics. As noted above, Plaintiff credibly testified that such a POSITA would understand that the glaze on the ceramic surface would need to soften to carry out the process and how to achieve that based on their experience. Although Mr. Burkett explained that many different glazes exist, the specification still provides a reasonable amount of guidance to a POSITA. In relevant part, the specification's "kiln firing temperatures" definition notes that "the firing temperature of the transfer is often the same or slightly lower than the firing temperature of the original glaze coating of the glossy substrate so that the surface may soften just enough to allow the print to permanently sink in." [Ex. 21 at Col.4, Lns. 47–51]. Although there may be some experimentation needed to determine at what temperature the glaze would soften and the image would embed, Defendant has not shown by clear and convincing evidence that a POSITA's experimentation would be undue or that the patent does not provide a "reasonable amount of

guidance." Wyeth & Cordis Corp., 720 F.3d at 1386. Accordingly, the patent is not invalid for lack of enablement.

Judgment for Plaintiff shall therefore enter on Counterclaim Count I.

B. Count I: Infringement; Counterclaim Count II: Declaratory Judgment of No Infringement; & Counterclaim Count III: Declaratory Judgment of Unenforceability

Plaintiff asserts that Defendant infringed, directly and indirectly, claims 1, 2, 4, 5, 6, 7, 8 and 9 of the '237 patent.

1. Direct Infringement

Plaintiff argues that Defendant, through the production of two videos, directly infringed the '237 patent. [ECF No. 164 at 74–78].[4] The two videos in question, The Graphic Pot: Hand Building & Surface Techniques, [Ex. 111], and Ceramic Decals New Ideas and Techniques, [Ex. 105], show two ceramists explaining how to apply images onto a ceramic surface. Plaintiff asserts that the technique being shown is the '237 process. [ECF No. 164 at 74–78]. Defendant contends that the videos do not show the ceramists performing every step in the claimed method, [ECF No. 165 at 8–14], and, even if they did perform the method, they were not acting under Defendant's direction or control such that Defendant can be held liable for their infringing acts, [id. at 6–8].

Literal, or direct, infringement is a two-step analysis. Durel Corp. v. Osram Sylvania, Inc., 256 F.3d 1298, 1303 (Fed. Cir. 2001) (citations omitted). "First, the claim must be properly construed to determine its scope and meaning. Second, the claim as properly construed must be compared to the accused device or process." Id. (internal citations and quotations marks

[4] Though Plaintiff identified 14 Accused Media at trial, her post-trial briefing only argues that two videos directly infringed, [ECF No. 164 at 76–78], while the remaining Accused Media indirectly infringed by inducing third parties to perform the patented process, [id. at 78–82].

omitted). The burden is on a patent owner to prove infringement. Aristocrat Technologies Australia Pty Ltd. v. Intern'l Game Techn., 709 F.3d 1348, 1362 (Fed. Cir. 2013). "To infringe a method claim, a person must have practiced all steps of the claimed method." Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1317 (Fed. Cir. 2009) (citing Joy Techs., Inc. v. Flakt, Inc., 6 F.3d 770, 775 (Fed. Cir. 1993)). Where, as here, Defendant did not personally perform all of the steps of the method, Plaintiff must show that "all the steps of the claimed method [are performed] . . . through another acting under [the entity's] direction or control." Aristocrat Technologies Australia Pty Ltd., 709 F.3d at 1362 (citation omitted). "[T]he control or direction standard is satisfied in situations where the law would traditionally hold the accused direct infringer vicariously liable for the acts committed by another party that are required to complete performance of a claimed method." Id. (citation omitted); see also Akamai Techs., Inc. v. Limelight Networks, Inc., 797 F.3d 1020, 1023 (recounting that direct infringement has been found if an entity "acts through an agent (applying traditional agency principles) or contracts with another to perform one or more steps of a claimed method"). The Federal Circuit has explained that, while situations should be assessed on a case-by-case basis, "directing or controlling others' performance [also] includes circumstances in which an actor: (1) *conditions* participation in an activity or receipt of a benefit upon others' performance of one or more steps of a patented method, and (2) *establishes the manner or timing* of that performance." Eli Lilly & Co. v. Teva Parenteral Medicines, Inc., 845 F.3d 1357, 1365 (Fed. Cir. 2017) (citations and internal quotation marks omitted) (emphasis in original).

It is undisputed that Defendant entered into production contracts with the ceramists and produced the videos. [Exs. 106, 112]. Plaintiff argues that these contracts are proof that Defendant controlled and directed the ceramists' actions. [ECF No. 164 at 77]. Plaintiff

highlights that the contracts grant Defendant, as producer, "any and all of the right, title, and interest in" the video; direct the ceramists in the video to prepare and submit a script with final approval rights given to Defendant; and prohibit the ceramists from creating any competitive videos. [Id. (citing Exs. 106, 112)]. These contractual provisions, however, are insufficient to show by a preponderance of the evidence that Defendant directed or controlled the ceramists.

Although they were in a contractual relationship for the creation the videos, there is insufficient evidence in the record to conclude that Defendant told the ceramists to perform the method or conditioned their ability to be in the video on performing all of the steps in the method. To the contrary, Ms. Harnetty testified that the production agreements do not instruct artists to perform any specific techniques and that the purpose of the videos is to show what the artists in the field are *already* performing, rather than seeking out artists to perform a certain technique at Defendant's request. See [Dec. 6 Tr. 877:16–23, 884:8–13]. Further, Plaintiff admits that for the Ceramic Decals New Ideas and Techniques video she is unclear when the pieces shown in the video were made, there is no footage showing the ceramist firing the pieces in a kiln, and in fact she assumed that the pieces were made before the video shoot. [Nov. 16 Tr. 86: 11–21]. Without further evidence, the Court cannot conclude that pieces made prior to the video's production were created due to Defendant's direction or control.

Thus, because Plaintiff has failed to show beyond a preponderance of the evidence that Defendant directed the ceramists in the two videos to perform every step in the '237 method, she cannot show that it directly infringed her patent.

Judgment shall therefore enter for Defendant on Count I and Counterclaim Count II to the extent Plaintiff asserts direct infringement of the '237 patent.

2. Induced Infringement

Plaintiff also asserts that Defendant's publication of the Accused Media induced third-party subscribers and customers to infringe the '237 patent. [ECF No. 164 at 78–82]. Although, Defendant has not directly infringed the '237 patent, it may still be liable for inducing third parties to infringe the patent.

Under 35 U.S.C. §271(b), "[w]hoever actively induces infringement of a patent shall be liable as an infringer." 35 U.S.C. §271(b). "In contrast to direct infringement, liability for inducing infringement attaches only if the defendant knew of the patent and that the induced acts constitute[d] patent infringement." Commil USA, LLC v. Cisco Sys., 575 U.S. 632, 639 (2015) (internal quotation marks omitted). Inducement can be proven through circumstantial evidence. Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc., 843 F.3d 1315, 1331 (Fed. Cir. 2016). Put another way, a plaintiff must show that the alleged inducer "knew of the patent, knowingly induced the infringing acts, and possessed a specific intent to encourage another's infringement of the patent." Vita-Mix Corp. v. Basic Holding, Inc., 581 F.3d 1317, 1328 (Fed. Cir. 2009) (citation omitted). "Intent can be shown by circumstantial evidence, but the mere knowledge of possible infringement will not suffice." Id.

a. Knowledge of the Patented Process and the Process Taught

The record demonstrates that Defendant, through its employees, was aware of the pending provisional patent application as early as April 2006 because it specifically asked for and received a copy. [Ex. 25]. It was also notified that the patent had issued in 2010. [Nov. 15 Tr. 105:23–106:6].

Most of the Accused Media teach every step of the method because they provide a "how to" for performing the limitations in claims 1, 2, 4, 5, 6, 7, 8, and 9 of the '237 patent. See supra

Section III. F. Defendant does not meaningfully dispute, and the record clearly demonstrates, that several of the Accused Media describe and/or depict printing or copying an image onto film covered decal paper by using iron-oxide toner and/or a laser printing device, placing the printed image in water and separating the film layer from the paper layer, transferring the film layer onto a glossy substrate, firing the glossy substrate in a kiln at over 1000 degrees, disappearing the film, and producing a sepia image. Defendant does, however, argue that there can be no induced infringement because two limitations of the claims are not present in any of the Accused Media. [ECF No. 165 at 30–33]. First, as the Court understands it, Defendant contends that the Accused Media does not teach "evaporation" as defined by the Court and used in independent claims 1 and 8, because the process taught in the Accused Media has the film burning, not evaporating. [Id. at 30–32]. Nothing in the Court's claim construction, however, requires the understanding of "evaporate" propounded by Defendant. Defendant made a similar argument in its summary judgment briefing and, when rejecting that argument at that stage, the Court explained that it did not construe the term "evaporate"

> to require that all portions of the film must evaporate, nor did the parties indicate that the claims should be read to require this. Instead, the Court observed that "a solid, such as a film . . . would first melt, and then, *those portions that became liquid* would evaporate." [ECF No. 46 at 18 (emphasis added)]. The Court's construction of the term is, in part, "to change a material into a gas," with no additional limitation such as "entirely or completely" or "with the ability to change back into a solid."

[ECF No. 71 at 12]. The Court also clarified that "Defendant has not persuaded the Court that a POSITA, as defined by this Court, would understand the claims or the invention to require the film to do anything more than disappear—whether through melting, evaporating, or burning (in whole or in part)—during heating at a high temperature." [Id.]. Plaintiff explained that in testing her method she observed that at 550 degrees Fahrenheit, the film appears to melt;

between 600 and 800 degrees Fahrenheit there is no smoke, but the smell of fumes; and between 800 and 1010 degrees Fahrenheit the film completely disappeared. [Nov. 15 Tr. 75:16–77:7]. Defendant does not dispute that almost all the Accused Media at issue in this trial describe and/or show through photos that the film placed on the glazed substrate disappeared and also recommend kiln firing ranges above 1010 degrees Fahrenheit, which resulted in the film disappearing. [Ex. 105 (recommending decal firing at cone 09); Ex. 111 (cone 08 to 04); Ex. 114 (cone 04); Ex. 115 (showing ceramic substrate with film disappeared); Ex. 116 (cone 04); Ex. 117 (stating that "four cones below the melting point of the glaze works well"); Ex. 118 (showing chart of cone ranges between 010 and 6); Ex. 119 (cone 04); Ex. 120 (cone 08); Ex. 121 (cone 08); Ex. 122 (cone 08); Ex. 124 (cone 04); Ex. 126 (cone 08)].[5] Therefore, the Accused Media teach evaporating the film as construed by the Court.

Second, Defendant argues that the Accused Media does not teach the limitations in independent claims 1 and 8 because Plaintiff cannot prove that the process shown results in a permanent image transfer. [ECF No. 165 at 8–10, 32]. During claim construction, the Court construed "permanently" to mean "[i]n a way that exists or remains unchanged for the life of the substrate." [ECF No. 41 at 24]. Defendant's primary contention is that witnesses in this case testified that ceramics last for thousands of years, and Mr. Burkett opined that is impossible to know if the image will remain on the substrate for that long. [ECF No. 165 at 8–10]. Several of the Accused Media explicitly state that the process they are using results in a permanent transfer of the image, [Exs. 114, 116, 118, 119, 124], and one newsletter goes as far as saying "if you fire

[5] Plaintiff explained at trial that ceramists measure the temperature of a kiln using "cones," [Nov. 15 Tr. 7:9–14], and that anything above cone 09 is also above 1000 degrees Fahrenheit, [Nov. 16 Tr. 23:24–24:4]. Mr. Burkett also testified that "cone 022, the lowest cone … is barely over a thousand degrees . . . ." [Dec. 8 Tr. 976:18–22].

them PROPERLY, they will be fired into the glaze. They will NEVER wear off," [Ex. 114]. Further, Plaintiff's testimony demonstrates that the '237 process, which requires a temperature to soften the glaze and allow the iron oxide to sink in, results in a smooth, continuous surface with a sepia image, and when tested with various abrasive processes, such as sanding, the image did not dislodge from the surface of the substrate. [Nov. 15 Tr. 43:12–44:6; 67:14–68:7]. And, as noted above, the Accused Media teach that step by explaining or showing that the ceramic and decal need to be heated to a temperature sufficient to make the film disappear, leaving only an embedded, sepia image behind. Therefore, the Accused Media sufficiently teach a process that results in a permanent transfer of the image.

b. Inducement of Infringement

Although the Accused Media teach the steps of the method, this alone is not enough to demonstrate that Defendant induced another to infringe. First, Plaintiff must additionally demonstrate that there has in fact been direct infringement by third parties. Limelight Networks, Inc. v. Akamai Techs., Inc., 572 U.S. 915, 920–21 (2014). Plaintiff argues that third-party consumers infringed the process after viewing the Accused Media. [ECF No. 164 at 81]. Defendant counters that there is no evidence that any third party infringed the '237 patent because (1) Plaintiff cannot identify specific individuals who practiced the process after reading specific Accused Media, [ECF No. 165 at 15], and (2) Plaintiff put forth no evidence regarding third parties having access to a printer with 30% iron oxide toner, [id. at 10–11, 14].

Generally speaking, "a patentee [is not] required to prove direct infringement to a complete certainty. A patentee is only required to prove direct infringement by a preponderance of the evidence—that it is more likely than not that the direct infringement occurred." O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., 449 F. App'x 923, 928 (Fed. Cir. 2011) (citing Lucent

Technologies, Inc., 580 F.3d at 1317–18)). Plaintiff has met her burden. First, ceramist Lawrence O'Neal testified, via his deposition, that he actually performed the process after watching one of Defendant's accused videos and he did not use decal paper from Plaintiff to perform the process. [ECF No. 137-5 at 6–11; Nov. 17 Tr. 51:2–11]. Plaintiff also put forth evidence of Defendant's market share and the reach of its publications, which allows the Court to conclude that it is more likely than not that at least one reader or viewer of the Accused Media directly infringed on the '237 patent. Koninklijke Philips N.V. v. Zoll Med. Corp., 656 F. App'x 504, 522 (Fed. Cir. 2016) (noting that given the large market share of the accused indirect infringer, a "reasonable jury" could not reach the conclusion that "not a single one of [the accused infringer's] customers in this sizable share of the market used the devices" in an infringing way); see also Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1272 (Fed. Circ. 1986) (affirming lower court's direct infringement finding based on "circumstantial evidence of extensive puzzle sales, dissemination of an instruction sheet teaching the method of restoring the preselected pattern with each puzzle, and the availability of a solution booklet on how to solve the puzzle"). Specifically, Defendant's own media kits list their magazines' market reach from between 52,000 to 145,000 individuals annually, which includes non-subscribers. [Ex. 35 (2010 CM); Ex. 43 (2010 PMI); Ex. 46 (2011 CM); Ex. 47 (2011 PMI); Ex. 48 (2012 CM); Ex. 49 (2013 CM); Ex. 50 (2013 PMI); Ex. 51 (2014 CM); Ex. 52 (2014 PMI); Ex. 53 (2015 PMI); Ex. 54 (2016 CM); Ex. 55 (2016 PMI); Ex. 56 (2017 CM); Ex. 57 (2018 CM); Ex. 58 (2018 PMI); Ex. 59 (2019 PMI); Ex. 60 (2020 CM); Ex. 61 (2020 PMI)]. This allows the Court to conclude that Plaintiff has circumstantially proven direct infringement by a preponderance of the evidence.

Second, although Plaintiff has satisfied her burden by showing that third parties directly infringed her patent and that the Accused Media taught her method, she still must prove that Defendant had a specific intent to induce that infringement. "Inducement can be found where there is evidence of active steps taken to encourage direct infringement, which can in turn be found in advertising an infringing use or instructing how to engage in an infringing use. But such instructions need to evidence intent to *encourage* infringement." Takeda Pharms. U.S.A., Inc. v. W.-Ward Pharm. Corp., 785 F.3d 625, 630–31 (Fed. Cir. 2015) (internal quotation marks and citations omitted) (emphasis in original). "The mere knowledge of possible infringement by others does not amount to inducement; specific intent and action to induce infringement must be proven." DSU Med. Corp. v. JMS Co., 471 F.3d 1293, 1305 (Fed. Cir. 2006) (internal quotation marks and citation omitted); Exergen Corp. v. Kaz USA, Inc., No. 13-cv-10628, 2015 WL 5163038, at *6 (D. Mass. Sept. 3, 2015).

Plaintiff therefore has the burden of proving that Defendant had the specific intent to encourage its readers to perform the '237 process without purchasing a kit or license from her company. Although she seems to contend that it is sufficient, simply publishing the steps of Plaintiff's method is not enough to constitute induced infringement. Takeda Pharms. U.S.A., Inc., 785 F.3d at 630–31 ("Merely describ[ing] an infringing mode is not the same as recommend[ing], encourag[ing], or promot[ing]" (internal quotation marks and citations omitted)). As Plaintiff admitted at trial, if someone reads or views the Accused Media but then purchases supplies from her, they are licensed to perform the method, and it would not be infringement. [Nov. 17 Tr. 62: 20–24].[6] Thus, the Accused Media must go beyond just showing

[6] Q. Now, moving on from Mayco to today, if a customer purchases your kits today, instructional kits today, the fired-on kits, is your customer licensed to practice your process?

the method and must actively promote or advertise an infringing use. Here, eight of the Accused Media provide lists of materials needed to perform the process, which either do not mention Plaintiff and her company as providers of decal paper or mention her company along with others that provide decal supplies. [Exs. 105; Ex. 108 at Banhazl0000008 (the accompanying handout to Ex. 105); Ex. 111; Ex. 114 at Banhazl0000036; Ex. 119 at Banhazl0000727 Ex. 121 at Banhazl0003784; Ex. 124 at Banhazl0002267; Ex. 125 at Banhazl0002271; Ex. 126 at Banhazl0002286].[7] This unusual set of facts results in a close call, but Defendant's advertisement and promotion of decal paper that does not include a license to perform the process just barely demonstrates beyond a preponderance of the evidence that Defendant induced its customers to engage in infringing acts.

Judgment shall therefore enter for Plaintiff on Count I and Counterclaim Count II to the extent she asserts indirect infringement of the '237 patent.

3. Damages

Having found that Defendant induced the infringement of the '237 patent, the Court must next consider the appropriate remedy for the infringement. 35 U.S.C. § 284 provides that, "[u]pon finding for the claimant the court shall award the claimant damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court." The

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A. Yes.
[Nov. 17 Tr. 62:20–24].

[7] These Accused Media are: Ceramic Decals New Ideas and Techniques, [Ex. 105 (video)]; The Graphic Pot, [Ex. 111 (video)]; Engaging Ceramic Surfaces, [Ex. 114 (workshop)]; Image & Design Transfer Techniques "Using Laser Toner Decals" chapter, [Ex. 119 (book)]; A Piece of Cake, [Ex. 121 (website article)]; Breaking the Rules, [Ex. 124 (PMI article)]; Supply Room Decalcomania, [Ex. 125 (PMI article)]; and Kari Radasch and the Sweetness of Discovery, [Ex. 126 (CM article)].

patentee has the burden of proving damages. Whitserve, LLC v. Computer Packages, Inc., 694 F.3d 10, 26 (Fed. Cir. 2012). "The most common method for determining a reasonable royalty is the hypothetical negotiation approach, which 'attempts to ascertain the royalty upon which the parties would have agreed had they successfully negotiated an agreement just before infringement began.'" Virnetx, Inc. v. Cisco Sys., Inc., 767 F.3d 1308, 1326 (Fed. Cir. 2014) (quoting Lucent Techs., Inc, 580 F.3d at 1324)). When a reasonable royalty varies with the number of units sold, rather than a lump-sum payment, "it generally has two prongs: a royalty base and a royalty rate." Id.; Whitserve, LLC, 694 F.3d at 27 ("When a hypothetical negotiation would have yielded a running royalty, the classic way to determine the reasonable royalty amount is to multiply the royalty base, which represents the revenue generated by the infringement, by the royalty rate, which represents the percentage of revenue owed to the patentee.").

Court typically apply some subset of the fifteen "Georgia Pacific factors" to analyze the hypothetical negotiation and determine the reasonable royalty calculation. See Whitserve, LLC, 694 F.3d at 27 (citing Georgia–Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970)). The factors are:

> (1) royalties the patentee has received for licensing the patent to others; (2) rates paid by the licensee for the use of comparable patents; (3) the nature and scope of the license (exclusive or nonexclusive, restricted or nonrestricted by territory or product type); (4) any established policies or marketing programs by the licensor to maintain its patent monopoly by not licensing others to use the invention or granting licenses under special conditions to maintain the monopoly; (5) the commercial relationship between the licensor and licensee, such as whether they are competitors; (6) the effect of selling the patented specialty in promoting sales of other products of the licensee; (7) the duration of the patent and license term; (8) the established profitability of the product made under the patent, including its commercial success and current popularity; (9) the utility and advantages of the patent property over old modes or devices; (10) the nature of the patented invention and the benefits to those who have used the invention; (11) the extent to which the infringer has used the invention and the value of that use; (12) the portion of profit

> or of the selling price that may be customary in that particular business to allow for use of the invention or analogous inventions; (13) the portion of the realizable profit that should be credited to the invention as opposed to its non-patented elements; (14) the opinion testimony of qualified experts; and (15) the results of a hypothetical negotiation between the licensor and licensee.

Id. at 27 n.11.

Plaintiff seeks reasonable royalty damages of between $675,400 and $925,300, which is the amount calculated by her expert, Mr. John Elmore. [ECF No. 164 at 88]. As the Court understands it, the bulk of this damages amount stems from the infringing articles in CM and PMI and attempts to capture the number of licensed film covered decal paper sheets that Plaintiff would have sold to third-party customers through her company Heirloom Ceramics, and the royalty she would have received from those sheets, in the absence of Defendant's induced infringement. Mr. Elmore also offers a separate calculation method for damages attributable to the infringing videos and books. Unfortunately, Defendant did not present its own damages expert, or otherwise offer a competing damages estimate, which would have been helpful to the Court in parsing the calculations proffered by Plaintiff's expert. Defendant instead argues that Mr. Elmore's opinion is unsupported and therefore not sufficient for Plaintiff to satisfy her burden of proving damages.[8] Ultimately, for the reasons set forth below, the Court finds that the damages amount proposed by Plaintiff's expert is not fully supported by the record and Plaintiff

[8] Defendant appears to argue that if Mr. Elmore's estimate and opinion are flawed or excluded, Plaintiff cannot be awarded any damages. This view, however, is not correct. Instead, it would still fall to the Court to apply the Georgia Pacific factors and award a reasonable royalty. Apple Inc. v. Motorola, Inc., 757 F.3d 1286, 1327–28 (Fed. Cir. 2014) ("If a patentee's evidence fails to support its specific royalty estimate, the fact finder is still required to determine what royalty is supported by the record."), overruled on other grounds by Williamson v. Citrix Online, LLC, 792 F.3d 1339 (Fed. Cir. 2015); SiOnyx, LLC v. Hamamatsu Photonics K.K., 330 F. Supp. 3d 574, 598 (D. Mass. 2018) (explaining that even if there is no expert testimony on damages "the court would still be obligated to evaluate what evidence there was to come up with a reasonable royalty").

has failed to meet her burden to support an award between $675,400 and $925,300. The Court had adjusted the amount consistent with the evidence developed at trial.

a. Magazine Articles

For damages attributable to the infringing articles published in CM and PMI, Mr. Elmore based his royalty rate on the April 2006 negotiation between Plaintiff and Mayco, which resulted in Plaintiff receiving a $1 royalty payment for each sheet of decal paper sold in Mayco kits. [Nov. 22 Tr. 735:4–736:12; Ex. 22; Ex. 23]. These two available Mayco kits included a starter kit which contained five sheets of decal paper and other materials and a refill kit which only included ten sheets of decal paper. [Nov. 22 Tr. 728:9–23, 730:16–19]. In return, Mayco was given rights to distribute the process and an implied license to use the process. [Nov. 22 Tr. 729:1–20]. Mr. Elmore determined that this negotiation was probative of a hypothetical negotiation between Plaintiff and Defendant and, after considering the other relevant Georgia Pacific factors, concluded that the parties to such a negotiation would reach an agreement for a $1 per sheet royalty rate. [Nov. 22 Tr. 736:6–12].

Mr. Elmore then determined the royalty base for the ceramic kits that would have been sold to customers who had read Defendant's infringing articles published in CM and PMI. [Ex. 132]. He began with the numbers of subscribers to each magazine per year and assumed complete overlap between the subscribers to each. [Id.]. He then calculated the estimated market reach of the articles that taught the '237 process by applying a "pass-along" factor, which accounted for the fact that articles would be shared with non-subscribers. [Id.; Nov. 18 Tr. 548:9–549:7]. The "pass-along" factor was drawn from Defendant's own media kits, which use the term "pass along recipients" and explain that subscribers share articles with others. E.g., [Ex. 43 at Banhazl0001941]. The total market reach was then adjusted to account for the percentage

of readers who read all of the articles in the magazines, which would necessarily include the infringing articles. [Ex. 132]. After determining the annual market reach and likely number of customers in the United States, Mr. Elmore determined the likely number of subscribers that would have purchased a ceramic kit. [Ex. 133]. This estimate was based on information about consumers generally as reported by the Direct Marketing Association, Inc.'s ("DMA") 2018 Statistical Fact Book, which explains that the "conversion rate" of readers who would read a digital newsletter, email, or other digital media and would then buy a product was 1.75%. See [Nov. 19 Tr. 655: 4–656:5, 658:2–13; Ex. 133]. From this, Mr. Elmore extrapolated that 1.75% of the articles' estimated market reach would perform the '237 process. Then, looking to Plaintiff's sale's data, Mr. Elmore estimated the number of kits that a typical user would purchase a year. [Ex. 133]. From this, he calculated the total number of kits that would be sold, the total sheets of decal paper that would be sold, and finally, Plaintiff's expected royalty payment. [Id.]. Mr. Elmore performed this calculation for the years 2010 through 2021, even though the accused infringing articles were all published before 2014. See [id.]. To account for this, Mr. Elmore calculated the estimated attrition of readers by considering the fact that subscribers re-read articles and that articles remain available online, but recognizing that as more time passed such re-reading was less likely (the "attrition rate"). [Nov. 19 Tr. 572:1–19].

As the Court understands it, the per sheet calculation frames the hypothetical negotiation in terms of the profits from kit sales that Plaintiff would be giving up by allowing Defendant to license her process. Even though Defendant does not actually sell paper kits, [Nov. 18 Tr. 524:25–525:5], this is an acceptable lens from which the view the hypothetical negotiation, Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1555 (Fed. Cir. 1995) (noting that it was "not unreasonable for the district court to find that an unwilling patentee would only license for one-

half its expected lost profits and that such an amount was a reasonable royalty. The fact that the award was not based on the infringer's profits did not make it an unreasonable award"). Nevertheless, the record does not support the conclusion that a $1 royalty per sheet rate accurately reflects a hypothetical negotiation between Plaintiff and Defendant.

First, the fifth Georgia Pacific factor looks to "the commercial relationship between the licensor and licensee, such as whether they are competitors." Whitserve, LLC, 694 F.3d at 27 n.11. Mr. Elmore's analysis of this factor is unsupported by the record because he has failed to convincingly explain how the relationship between Plaintiff and Defendant is similar enough to the relationship between Mayco and Plaintiff to warrant the same $1 per sheet royalty rate. Mayco sold ceramic kits and profited directly from every kit sold that taught the method. Defendant's relationship is different. Because Defendant is a publisher and does not derive revenue from sales of decal paper, the benefit it derives from printing the '237 patent is substantially different and more attenuated than the benefit Mayco would derive from the direct sale of kits to be used to perform the method. Given the difference in position between Mayco and Defendant, Defendant would not pay the same royalty rate for the right to publish articles that teach the '237 method.

Second, although Mayco and Plaintiff reached an agreement at one point for a $1 per sheet royalty, Mr. Elmore admitted that this agreement did not continue after the patent issued and that no other company has licensed Plaintiff's process for $1 per sheet since the patent issued. [Nov. 18 Tr. 544:1–545:17]. Instead, in April 2009, Mayco offered Plaintiff a $0.25 per sheet royalty rate. [Ex. 28]. In light of this evidence and the nature of the parties' relationship, the more reasonable and supported royalty rate is $0.25 per sheet. See Lucent Techs., Inc, 580

F.3d at 1325 (the reasonable royalty calculation "necessarily involves an element of approximation and uncertainty.").

Regarding the royalty base, Mr. Elmore's reliance on customer surveys, including Defendant's own media kits and the DMA's publications on consumer behavior, is not in itself inappropriate or speculative, and this type of data is a recognized way of calculating the royalty base of third parties that will use the Accused Media to perform the '237 patent. Lucent Techs., Inc., 580 F.3d at 1334 (noting that "depending on the case" data relevant to infringing use may "come from sales projections based on past sales, consumer surveys, focus group testing, and other sources"). Though Defendant argues otherwise, the evidence presented at trial demonstrates that, in general, Mr. Elmore's method for establishing the reach of infringing articles is not so speculative that it must be disregarded. There is inherently some approximation and uncertainty in any reasonable royalty calculation, and Mr. Elmore's heavy reliance on Defendant's own analysis of its customers' habits and the reach of its products underscores the reasonableness of his approach. Although the Court recognizes that this data is seemingly maintained for advertising purposes and may thus be optimistic or aggressive, Defendant did not provide an alternative analytic framework.

Even if the reach of the articles is appropriate, Defendant argues that the damages calculation is flawed because Mr. Elmore calculated damages from 2014–2021 even though he admits that the last infringing article was published in 2013. [Nov. 19 Tr. 573:19–574:2; Ex. 117; ECF No. 165 at 23]. Mr. Elmore explained that he calculated damages for these years because the infringing articles were still available online and Defendant's media kits and other communications explain that subscribers will save articles for rereading, but that he applied an "attrition rate" to account for the decreasing reach in the years after the initial publication of an

infringing article. [Nov. 19 Tr. 580:10–581:22, 592:22–593:20; Ex. 103 (email from Mona Thiel stating that 98.3% and 95% of CM and PMI subscribers, respectively, "are saving the magazine for reference at a later date"); Ex. 43 (2010 PMI media kit stating that 94% of subscribers sometimes or often looked back at saved issues)]. From this, he concluded that an 80–95% "attrition rate" should be applied as the time from the initial publication increases (*i.e.*, the market reach should decrease between 5–20%). [Ex. 132]. Though the "attrition rate" remains at 90% or above from 2009 to 2019, Mr. Elmore reduced the rate to 80% for the years 2020 and 2021 due to the length of time since initial publication of the infringing articles and because Defendant's media kits for those years were not available to him. [Nov. 19 Tr. 575:19–576:1]. Given Defendant's own admission that its subscribers do indeed re-read articles and that this was a selling point used with advertisers, Mr. Elmore's assumption that infringing uses will continue beyond the publication date is supported by the record and cannot be said to be so speculative as to be "plucked out of thin air[.]" LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 69 (Fed. Cir. 2012). The Court disagrees, however, that "attrition rates" between 90–80% should be applied until 2021. Given that the last PMI/CM article that taught all of the steps of the method and also recommended a brand of paper to carry out the process was published in 2009, [Ex. 126], the Court will also apply a descending attrition rate going from 85–25% from 2012 to 2021. In the Court's view, this adjusted attrition rate reasonably incorporates Defendant's own representation that in general its readers save issues for rereading and that infringing articles remain available online, but also accounts for the reality that the media kits and emails Plaintiff relies on do not have any specific information about what articles are actually being reread or over what period of time, [Nov. 19 Tr. 622:3–623:15], and, further, that as the time from initial

publication increases, the likelihood that the infringing articles will be reread, resulting in new induced infringements, decreases, [Nov. 19 Tr. 579:19–23].

Defendant also contends that Mr. Elmore's analysis is flawed because it fails to properly apportion Defendant's infringing products as required by Georgia Pacific factor 13 and Federal Circuit precedent. [ECF No. 165 at 36]. Specifically, even though CM and PMI contained articles that had nothing to do with the '237 process (*i.e.*, non-infringing features), Mr. Elmore did not consider whether it was appropriate to reduce the damages to those attributable to the infringing publications only. Mr. Elmore asserts that apportionment occurred because the per sheet royalty rate necessarily isolates the pure value of the patented process. [Nov. 22 Tr. 710:9–15, 720:8–18]. In this case, unlike those cited by Defendants in support of its apportionment argument, the reasonable royalty is not based on profits that Defendant made from selling an infringing product and is instead relying on the number of kits that Plaintiff would have sold to third parties if Defendant had not infringed. Thus, Mr. Elmore's analysis did apportion the value of the patented process from the ceramic kits and only awards Plaintiff damages based on the value of the process rather than other features of the kits.

In sum, after applying a $0.25 royalty rate and an adjusted attrition rate, the reasonable royalty rate based on infringing articles published in CM and PMI is **$156,543.80**. The Court's calculations are detailed in the Appendix.

b. Books and Videos

Mr. Elmore used a completely different methodology for calculating the reasonable royalty for the infringing books and videos. Rather than looking at the number of viewers and readers and extrapolating from there to determine how many of them would practice the '237 process without a license, he instead looked to Defendant's profits from book and video sales.

[Exs. 134–35]. He then determined what percentage of the sales would be attributable to the patented process. [Id.]. Mr. Elmore found that the $1 reasonable royalty rate translated to 22% of the average sales price of the ceramic kits. [Id.]. Mr. Elmore then applied this 22% rate to the total video and total book sales to determine the reasonable royalty due to Plaintiff for the infringing books and videos. [Id.]. Defendant argues that this method fails to appropriately apportion the revenue attributable to the infringing chapters and videos and the non-infringing features. [ECF No. 165 at 36]. Mr. Elmore admitted that he did not analyze which elements of Defendant's accused infringing products were infringing or not. [Nov. 18 Tr. 538:23–539:5; Nov. 22 Tr. 709:11–16]. Instead, Mr. Elmore determined the percentage of ceramic kit sales attributable to Plaintiff's process (*i.e,*, the patented element) and applied that same percentage to the book and video sales. [Nov. 22 Tr. 719:22–720:25]. Thus, this was an apportionment of the royalty rate that aimed to only account for the value of the patented process. While a "complete lack of economic analysis to quantitatively support. . . apportionment" is grounds for excluding an expert's opinion, Mr. Elmore's opinion is not completely speculative in light of this explanation. LaserDynamics, Inc., 694 F.3d at 69 (Fed. Cir. 2012).

Though his general approach is defensible, Mr. Elmore again used a $1 per sheet royalty rate when calculating the percentage. As noted above, the Court finds that the reasonable royalty rate is $0.25 per sheet. He also used the incorrect prices for the ceramic kits in his calculations. [Nov. 22 Tr. 745:3–748:5 (admitting that he incorrectly calculated the 22% royalty rate)]. Finally, he includes revenue from two books that did not induce infringement because they either did not promote other sources of decal paper or were not raised as an Accused Media during trial. [Ex. 134 (calculating damages based on the "Electric Kiln," which did not induce infringement, and "Low Fire Glazes and Special Projects," which was not offered as an Accused

Media at trial)]. As noted above, Plaintiff has only proven that a chapter from "Image Design Transfer Techniques," [ECF No. 119], which explicitly advertises other decal papers, induced infringement. Plaintiff has not demonstrated why profits from a non-infringing book should be included in the damages analysis. Thus, after applying the appropriate royalty rate, using the correct prices for ceramic kits, and limiting to total sales to the infringing book, the total damages from infringing books and video sales is **$5,395.72.** The Court's calculations are included in the appendix.

Accordingly, Plaintiff is entitled to reasonable royalty damages in the sum of **$161,939.52**

c. Willful Infringement and Attorneys' Fees

Plaintiff also seeks enhanced damages due to Defendant's allegedly willful infringement and an award of attorney's fees. [ECF No. 164 at 82–85, 92–93].

A finding of willful damages can lead to an enhanced damages award. "The sort of conduct warranting enhanced damages has been variously described . . . as willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate." Halo Elecs., Inc. v. Pulse Elecs., Inc., 579 U.S. 93, 103–04 (2016). To establish willfulness, the patent holder must show that the infringer had knowledge of the patent and that its acts constituted infringement. SiOnyx, LLC, 330 F. Supp. 3d at 608. Willfulness is inferred from all the circumstances. Id.

There is no dispute that Defendant had knowledge of the patent and that Plaintiff told Defendant that she thought her patent was being infringed. These facts alone, however, do not lead to the conclusion that Defendant's conduct was willful. This case presents unusual factual circumstances and Defendant's employees were consistent in their response that they did not

believe they were infringing on the patent. [Exs. 25, 26, 32]. Plaintiff points to Ms. Harnetty's and Mr. Spahr's deposition testimony stating that those in the ceramics community do not patent their processes and that the community likes to share, and argues that this is evidence that Defendant knowingly ignored patent law. [ECF No. 164 at 84]. This testimony does not convince the Court that Defendant's actions were "willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, [or] flagrant," particularly where the issue of whether there was induced infringement is such a close call. Therefore, Plaintiff is not entitled to enhanced damages.

A "court in exceptional cases may award reasonable attorney fees to the prevailing party." 35 U.S.C. § 285. "[A]n exceptional case is simply one that stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated." Octane Fitness, LLC v. ICON Health & Fitness, Inc., 572 U.S. 545, 554 (2014). "[T]here is no precise rule or formula for making these determinations"; instead, district courts "may determine whether a case is exceptional in the case-by-case exercise of their discretion, considering the totality of the circumstances." Id. (internal quotation marks and citation omitted). Plaintiff argues that Defendant's willful infringement, the fact that Defendant failed to seek a legal opinion, and the harm to Plaintiff's business all show that this is an exceptional case. [ECF No. 164 at 93]. For the same reasons that the Court found that Defendant's infringement was not willful and given that Defendant's liability was a close call, this case also does not present the type of exceptional circumstances that would warrant an award of attorneys' fees. Accordingly, Plaintiff is not entitled to her attorneys' fees.

4. Equitable Estoppel, Laches, and Counterclaim Count III

Defendant also argues that Plaintiff's claims are barred by the doctrine of equitable estoppel because her actions led Defendant to believe that she did not intend to bring suit. [ECF No. 165 at 32–33]. The three elements of equitable estoppel are:

> a. The patentee, through misleading conduct, leads the alleged infringer to reasonably infer that the patentee does not intend to enforce its patent against the alleged infringer. "Conduct" may include specific statements, action, inaction, or silence where there was an obligation to speak.
> b. The alleged infringer relies on that conduct.
> c. Due to its reliance, the alleged infringer will be materially prejudiced if the patentee is allowed to proceed with its claim.

Scholle Corp. v. Blackhawk Molding Co., 133 F.3d 1469, 1471 (Fed. Cir. 1998).

Defendant has pointed to no evidence in the record to support its argument that Plaintiff ever communicated that it would not sue Defendant or would acquiesce to infringement. See [ECF No. 165 at 32–33 (not citing to the record)]. To the contrary, Plaintiff's communications with Defendant indicated that she did not approve of the infringement, which is further evidenced by her refusal to sign Defendant's proposed contract that would release it from all patent infringement liability. Defendant has also not offered any evidence to show that it relied on Plaintiff's conduct and was prejudiced by it. Thus, equitable estoppel does not bar Plaintiff's claims.[9]

[9] Although Counterclaim Count III, which seeks a declaration that the patent is unenforceable, is not raised in the joint pretrial memo or post-trial briefing, Defendant continued to assert it in its recently filed amended answer and counterclaim complaint. [ECF No. 131]. Counterclaim Count III alleges unenforceability due to Plaintiff's delay in filing suit and conduct indicating that she would not sue. [Id. at 9–10 ¶¶ 19–27]. For the reasons set forth above regarding equitable estoppel, Defendant has not proven that the patent is unenforceable on these grounds. Accordingly, judgment for shall enter for Plaintiff on Counterclaim Count III.

Similarly, Plaintiff argues that Defendant is asserting a defense of laches. [ECF No. 164 at 84–85]. To the extent Defendant is asserting that defense, it has not raised that argument in its post-trial briefing. [ECF No. 165]. "The accused infringer has the burden of proving the facts

V. CONCLUSION

For the reasons discussed herein, Defendant induced infringement of the '237 patent and Plaintiff is entitled to **$161,939.52** in damages.

Judgment shall enter for Plaintiff on Counterclaim Count I, Count I (to the extent she has alleged indirect infringement), Counterclaim Count II (to the extent she has alleged indirect infringement), and Counterclaim III. Judgment shall enter for Defendant on Count I (to the extent Plaintiff alleged direct infringement), and Counterclaim Count II (to the extent Plaintiff alleged direct infringement).

SO ORDERED.

May 10, 2022

/s/ Allison D. Burroughs
ALLISON D. BURROUGHS
U.S. DISTRICT JUDGE

related to laches, including delay and prejudice, by a preponderance of the evidence." Koninklijke Philips N.V. v. Zoll Med. Corp., No. 10-cv-11041, 2014 WL 2047878, *8 (D. Mass. May 16, 2014). Because Defendant has failed to identify any facts in support of this argument, it has not proven by a preponderance of the evidence that its laches defense applies.

VI. APPENDIX

Magazine Articles[10]

Year	2010 (May-Dec)	2011	2012	2013	2014	2015
Likely customers in U.S. before attrition	90,981	97,594	76,973	77,531	73,654	66,289
Attrition rate	0.95	0.95	0.85	0.75	0.65	0.60
Customers after attrition	86,432	92,714	65,427	58,148	48,875	39,773
Partial Period adjustment	57,621	92,714	65,427	58,148	48,875	39,773
Estimated number of infringers (multiplied by 1.75%)	1,008	1,622	1,145	1,018	838	696
Number of kits	7	8	8	8	7	8
Likely customers multiplied by number of kits	7,059	12,980	9,160	8,141	5,865	5,568
Multiplied by number of sheets (10)	70,586	129,800	91,598	81,408	58,647	55,683
Multiplied by royalty rate ($0.25)	17,646.43	32,450.00	22,899.47	20,351.89	14,661.75	13,920.69
Total (2010–2015)						**$121,930.23**

[10] Other than the $0.25 per sheet royalty and adjusted "attrition rate," the Court adopts the figures and calculations in Mr. Elmore's revised expert report. [Exs. 131–33].

Year	2016	2017	2018	2019	2020	2021 (Jan-Oct)
Likely customers in U.S. before attrition	59,660	53,694	48,324	43,492	39,143	31,314
Attrition rate	0.50	0.45	0.40	0.35	0.30	0.25
Customers after attrition	29,830	24,162	19,330	15,222	11,743	7,828
Partial Period adjustment	29,830	24,162	19,330	15,222	11,743	6,524
Estimated number of infringers (multiplied by 1.75%)	522	423	338	266	205	114
Number of kits	7	8	8	7	7	7
Likely customers multiplied by number of kits	3,654	3,383	2,706	1,865	1,438	799
Multiplied by number of sheets (10)	36,542	33,827	27,061	18,647	14,385	7,992
Multiplied by royalty rate ($0.25)	9,135.44	8,456.80	6,765.36	4,661.80	3,596.26	1,997.91
Total (2016–2021)						**$34,613.57**

Combined Articles Total: $156,543.80

Book and Video Sales[11]

Percentage of ceramic kit sales attributable to the patented process when using $0.25 royalty rate: [12]

10-sheet kit: 10 sheets x $0.25 = $2.50
$2.50 / $49.95 = 5.00%

5-sheet kit: 5 sheets x $0.25 = $1.25
$1.25 / $39.95 = 3.13%

Average Royalty Rate: (5% + 3.13%) / 2 = 4.07%

Royalty rate applied to video and book sales:

Videos: 4.07% x $86,144 = $3,506.06

Books: 4.07% x $46,429[13] = $1,889.66

Combined Books and Video Total: $5395.72

Total Damages (articles, books, video): $156,543.80 + $5395.72 = $161,939.52

[11] Other than the $0.25 per sheet royalty, price of the ceramic kits, and total book sales, the Court adopts the figures and calculations in Mr. Elmore's revised expert report. [Exs. 134–35].

[12] The appropriate pricing for the ceramic kits is described in the email exchange between Plaintiff and Mayco. [Ex. 23]. Mr. Elmore acknowledged that his revised expert report relied on an incorrect calculation because he assumed that 5-sheet kits were 49.95 and 10 sheet kits were 29.95, when in fact the 5-sheet kits were $39.95 and the 10-sheet kits were $49.95. [Nov. 22 Tr. 743–748].

[13] This figure was calculated by combining total sales attributable to just the hard copy and e-copy of "Image Design and Transfer Techniques." [Ex. 134].