

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

INPRIA CORPORATION,

Plaintiff,

v.

LAM RESEARCH CORP.,

Defendant.

C.A. No. 1-22-cv-01359-CJB

JURY TRIAL DEMANDED

PUBLIC VERSION - Filed September 10, 2024

**SECOND AMENDED AND SUPPLEMENTAL
COMPLAINT FOR INFRINGEMENT**

Plaintiff Inpria Corporation hereby alleges as follows:

THE PARTIES

1. Inpria Corporation (“Inpria”) is incorporated under the laws of the state of Delaware and has a regular and established place of business at 1100 NE Circle Blvd., Suite 360, Corvallis, Oregon 97330.

2. Inpria is a technological pioneer based in Corvallis, Oregon. Founded in 2007 in connection with researchers from Oregon State University, Inpria has spent the last 15 years developing new technology and becoming the world leader in cutting edge metal oxide photoresist design, development, and manufacturing, with an emphasis on applications for extreme ultraviolet light (EUV) semiconductor processing.

3. Inpria has been awarded numerous patents around the world as a result of its research and innovation, with additional patent applications under examination in patent offices around the world.

4. Upon information and belief, defendant Lam Research Corporation (“Defendant” or “Lam”) is incorporated under the laws of the state of Delaware, with its principal place of business at 4650 Cushing Parkway, Fremont, CA 94538.

JURISDICTION AND VENUE

5. This action arises under the United States patent laws, 35 U.S.C. §§ 101, et seq. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331, 1338, and 35 U.S.C. § 1, et seq.

6. Upon information and belief, this Court has personal jurisdiction over Defendant because Defendant has purposely availed itself of the privilege of conducting activities within this State and judicial District. For example, Defendant is incorporated in this District.

7. Venue is proper in this District pursuant to 28 U.S.C. § 1400(b).

**GENERAL ALLEGATIONS RELATED TO THE
INFRINGEMENT OF INPRIA’S PATENTS**

8. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 10,732,505, entitled “Organotin oxide hydroxide patterning compositions, precursors, and patterning” (“the ’505 Patent”), which was duly and legally issued on August 4, 2020. A true and correct copy of the ’505 Patent is attached hereto as Exhibit A.

9. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 9,823,564, entitled “Patterned inorganic layers, radiation based patterning compositions and corresponding methods” (“the ’564 Patent”), which was duly and legally issued on November 21, 2017. A true and correct copy of the ’564 Patent is attached hereto as Exhibit B.

10. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 9,310,684, entitled “Organometallic solution

based high resolution patterning compositions” (“the ’684 Patent”), which was duly and legally issued on April 12, 2016. A true and correct copy of the ’684 Patent is attached hereto as Exhibit C.

11. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 10,642,153, entitled “Organometallic solution based high resolution patterning compositions and corresponding methods” (“the ’153 Patent”), which was duly and legally issued on May 5, 2020. A true and correct copy of the ’153 Patent is attached hereto as Exhibit D.

12. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,537,048, entitled “Organotin oxide hydroxide patterning compositions, precursors, and patterning” (“the ’048 Patent”), which was duly and legally issued on December 27, 2022. A true and correct copy of the ’048 Patent is attached hereto as Exhibit E.

13. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,673,903, entitled “Monoalkyl tin compounds with low polyalkyl contamination, their compositions and methods” (“the ’903 Patent”), which was duly and legally issued on June 13, 2023. A true and correct copy of the ’903 Patent is attached hereto as Exhibit F.

14. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,693,312, entitled “Radiation based patterning methods” (“the ’312 Patent”), which was duly and legally issued on July 4, 2023. A true and correct copy of the ’312 Patent is attached hereto as Exhibit G.

15. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,809,081, entitled “Organotin oxide hydroxide patterning compositions, precursors, and patterning” (“the ’081 Patent”), which was duly

and legally issued on November 7, 2023. A true and correct copy of the '081 Patent is attached hereto as Exhibit H.

16. The '505, '564, '684, '153, '048, '903, '312, and '081 Patents are referred to herein collectively as the “Inpria Patents.”

17. Inpria practices its patented EUV semiconductor processing technology.

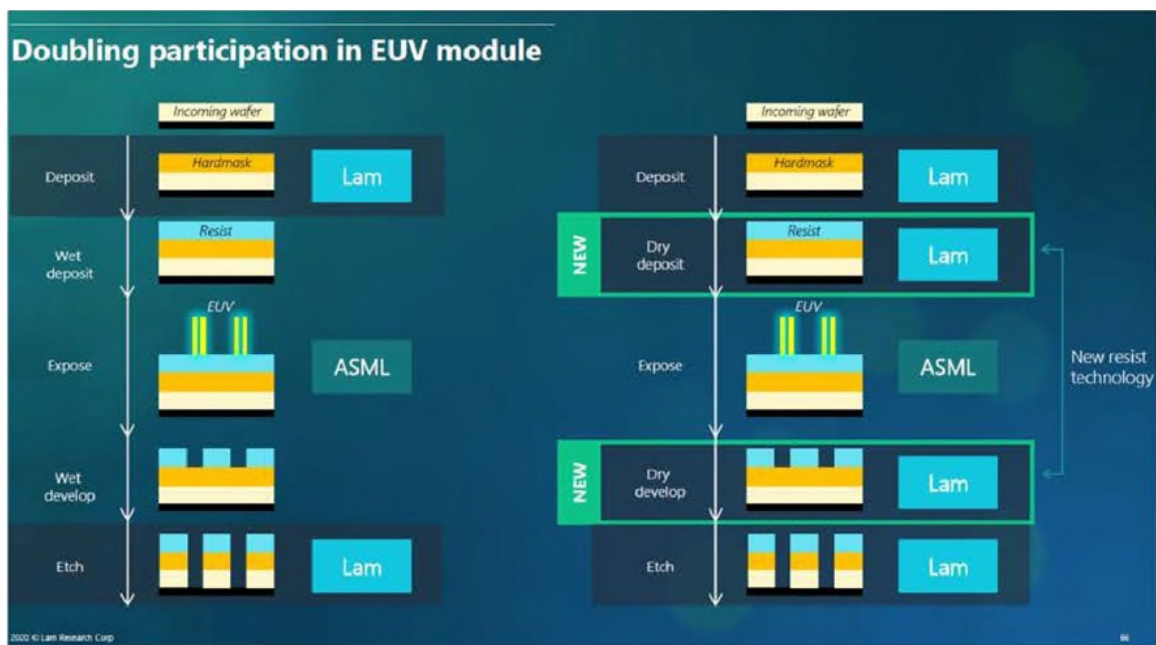
18. Upon information and belief, in violation of 35 U.S.C. § 271(a), Defendant directly infringes, literally or under the doctrine of equivalents, one or more claims of each of the Inpria Patents because it makes, uses, offers for sale, sells, and/or imports products it refers to as its “dry resist” or “dry deposition” process (“dry resist”) products, including a product Defendant describes as “Aether,” in the United States.

19. Defendant published a press release on February 26, 2020, stating that “Lam Research Corp. (Nasdaq: LRCX) today announced a dry resist technology for extreme ultraviolet (EUV) patterning.” See <https://newsroom.lamresearch.com/2020-02-26-Lam-Research-Unveils-Technology-Breakthrough-for-EUV-Lithography> (last accessed Dec. 10, 2023) (attached as Ex. I).

20. In July 2020, Defendant presented at a “2020 EUVL Workshop” on “Lithographic Performance of the First Entirely Dry Process for EUV Lithography.” See <https://euvlitho.com/2020/2020%20EUVL%20Workshop%20Keynote%20Weidman.pdf> (last accessed Dec. 10, 2023) (attached as Ex. Y). The presentation related to the “lithographic performance of a new entirely dry EUV photoresist platform,” where “[p]hotoresist films are applied using reactive organometallic precursors in a vapor phase process that provides uniform, homogeneous films stable to air and visible light. EUV exposure and subsequent bake steps induce crosslinking and densification, while unexposed areas remain hydrophobic and freely soluble in common organic solvents.” See Ex. Y.

21. Defendant published a press release on March 1, 2021, stating that Defendant “has created a breakthrough resist application technology that’s fundamentally different from spin-on liquid resists. Applied using reactive precursors in a vapor phase, the resulting film is uniform and homogeneous.” See <https://newsroom.lamresearch.com/Why-New-Photoresist-Technology-Is-Critical> (last accessed Dec. 10, 2023) (attached as Ex. K). “This new technology involves the dry deposition of small (<0.5 nm) metalorganic units, which has several advantages.” See Ex. K.

22. Defendant’s dry resist products are described in detail in numerous public publications, including Defendant’s 2020 Investor Day presentation (“Investor Day presentation”), a true and correct copy of an excerpt of which is attached as Exhibit L, and which may be obtained from <https://investor.lamresearch.com/events/event-details/2020-investor-meeting> (retrieved as of October 14, 2022). Upon information and belief, Defendant’s Investor Day presentation was presented publicly on or around March 3, 2020, and included, for example, a description of Defendant’s dry resist products on slide 66 as shown below:



23. Defendant’s Investor Day presentation included additional depictions of its infringing dry resist products, which include “[s]mall metalorganic units,” for example, on slide 73:

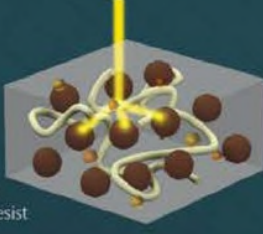
What's new? Dry resist technology

Wet

Absorber mixed with photo-acid generator, adhesion promoters, stability agents

Viscosity critical

Chemically amplified resist

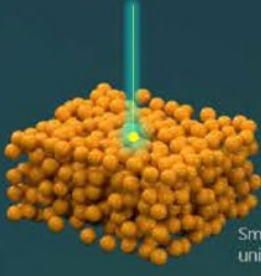


VS

Dry

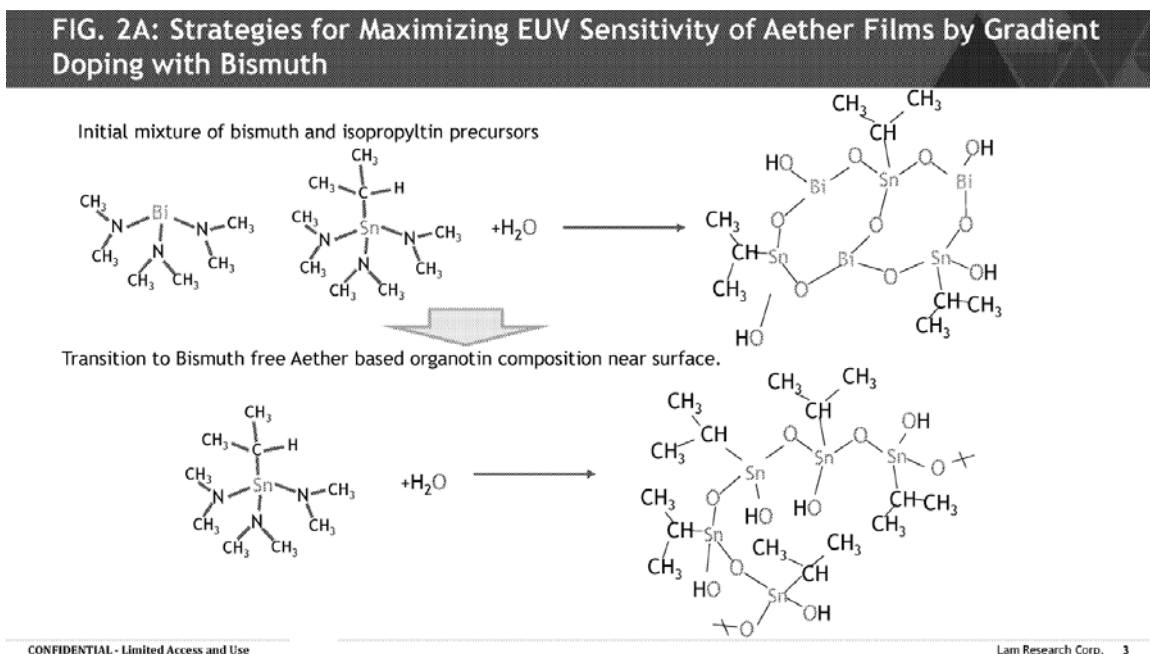
Fewer trade-offs, higher resolution, wider process window, higher purity

Small metalorganic units



2020 © Lam Research Corp. 39

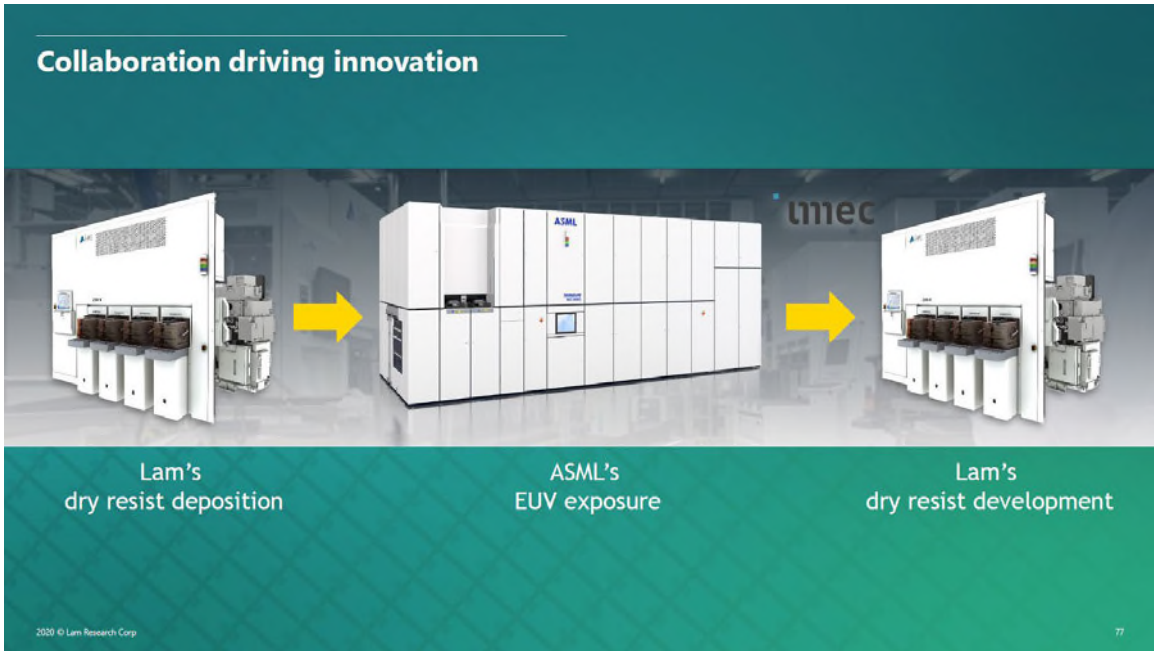
24. Defendant filed with the U.S. Patent and Trademark office a series of slides regarding Defendant's dry resist products in connection with provisional U.S. patent application No. 62/868,710 ("Provisional Filing") (attached as Exhibit N). The slides refer to "Aether Films" and "Bismuth free Aether based organotin composition near surface" and illustrate precursor and film compositions:



25. Defendant has filed numerous patent applications around the world describing its dry resist products. For example, in WO2020/264158A1, Defendant describes a “photoresist film . . . deposited based on a gas phase reaction of an organotin precursor such as isopropyl(tris)(dimethylamino)tin and water vapor, or may be a spin-on film comprising tin clusters in an organic matrix.” Ex. M ¶ [0074]. As another example, in U.S. Patent Pub. No. 2022/0308462, Defendant describes an “Apparatus for Photresist Dry Deposition” where “EUV-sensitive films may be operable as resists for subsequent EUV lithography” and “the thin films are organometallic materials, for example organotin materials.” Ex. AA Title, ¶¶ [0020]-[0021].

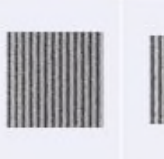
26. Defendant has employees in the U.S. that head the “Aether product line” and “Aether EUV dry photoresist product lines.” See <https://www.linkedin.com/in/mtmyers/> (last accessed Dec. 10, 2023) (attached as Ex. O). Defendant’s employees in the U.S. have performed “[n]ew materials and process development for the Aether Dry Photoresist product line,” “[i]ntegrated multiple Lam products for deposition, dry resist development and etch while leveraging collaboration with IMEC to optimize lithography performance,” and “[h]elped pathfind process integration for EUV patterning with Aether dry resist.” See <https://www.linkedin.com/in/austin-faucett-7530a6ba/> (last accessed Dec. 10, 2023) (attached as Ex. P). Defendant’s employees in the U.S. “[d]emonstrated the world’s first gas-phase deposited (CVD) and dry developable EUV photoresist, which has evolved into Lam’s Aether dry resist platform” and “[d]eveloped creative methods to evaluate dry EUV resist with limited access to EUV light source.” See <https://www.linkedin.com/in/chenghao-wu-lbl/> (last accessed Dec. 10, 2023) (attached as Ex. Q).

27. Upon information and belief, Defendant’s Investor Day presentation (Ex. L) included images of its equipment relating to Defendant’s dry resist products on slide 77:



28. Upon information and belief, Defendant used equipment at Lawrence Berkeley National Laboratory (LBNL) in the United States in relation to Defendant’s dry resist products. For example, in a 2021 presentation before the Society of Photographic Instrumentation Engineers (SPIE) (attached as Exhibit R), Defendant showed images of its “Dry Processed Resist” after EUV exposure using “LBNL MET5” at both 20nm and 18nm (slide 6):

Dry Processed Resist - Wide Exposure Latitude, z-Factor <1
Stable patterns beyond 1.5:1 aspect ratio

ASML 3400 NXE				LBNL MET5	
Pitch	32nm	28 nm	26nm	20nm	18nm
Deposition	Dry	Dry	Dry	Dry	Dry
Develop	Dry	Dry	Dry	Dry	Dry
Resist Thickness	20nm	20nm	20nm	20nm	20nm
Dose (mJ/cm ²)	42	46	39		
EL _{max} (%)	35	25	26		
LWR _{unbiased} (nm)	3.0	2.9	3.0		
z-factor (10 ⁻⁸ mJ nm ³)	1.6	1.0	0.75		
	 CD 16.1	 CD 14.0	 CD 12.9		

$EL = \frac{|E_{(CD-10\%)} - E_{(CD+10\%)}|}{E_{Rev}} \cdot 100\%$ $z\text{-Factor} = \left(\frac{pitch}{z}\right)^3 \times LWR^2 \times dose$

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29. MET5 is an EUV projection lithography tool located at LBNL. *See* <https://engineering.lbl.gov/cxro-center-for-x-ray-optics/>.

30. Defendant had knowledge of, or was willfully blind to, all of Inpria's Patents and the infringement alleged herein, at least because Defendant was aware of Inpria's Patents (or related patents) during prosecution of its own patent applications. For example, the '505 Patent was cited during prosecution of Defendant's U.S. patent applications, including the applications that issued as U.S. Patent Nos. 11,209,729 (Ex. DD) and 11,314,168 (Ex. EE). The '684 Patent was cited during prosecution of Defendant's U.S. patent applications, including the applications that issued as U.S. Patent Nos. 10,831,096 (Ex. FF) and 11,314,168 (Ex. EE). The '564 Patent was cited during prosecution of Defendant's U.S. patent applications, including the applications that issued as U.S. Patent Nos. 11,209,729 (Ex. DD) and 11,314,168 (Ex. EE). The '153 Patent was cited during prosecution of Defendant's U.S. patent applications, including the applications that issued as U.S. Patent Nos. 11,209,729 (Ex. DD) and 11,314,168 (Ex. EE). A patent application publication of a parent patent application of the '048 Patent was cited during prosecution of Defendant's U.S. patent applications, including the applications that issued as U.S. Patent Nos. 9,996,004 (Ex. GG) and 10,796,912 (Ex. HH). The '903 Patent (or a related patent publication) was cited during prosecution of an application relating to Defendant's JP6495025 (Ex. II). The '312 Patent (or a related patent publication) was cited during prosecution of an application relating to Defendant's JP6495025 (Ex. II) and EP4235757 (Ex. JJ). A patent application publication of a parent patent application of the '081 Patent was cited during prosecution of Defendant's U.S. patent applications, including the applications that issued as U.S. Patent Nos. 9,996,004 (Ex. GG) and 10,796,912 (Ex. HH).

31. Additionally, as Defendant's patent filings and publications reflect, Defendant has monitored developments relating to organometallic resists, including such resists offered by Inpria,

[REDACTED]

and therefore knew, or at the very least, should have known or was willfully blind, about the Inpria Patents. *See* Ex. M ¶ [0044] (“For example, described processes have been demonstrated for EUV photoresist compositions based on organotin oxides, being applicable to both commercially spin-coatable formulations (e.g., such as are available from Inpria Corp, Corvallis, OR) and formulations applied using dry vacuum deposition techniques, further described below.”); Ex. X (article co-authored by Defendant analyzing article co-authored by Inpria (attached as Ex. T), which describes Inpria’s metal oxide EUV resists).

32. Defendant has also made public projections that the market for its dry resist products would be greater than \$1B in the coming years.

33. Direct infringement by Defendant’s dry resist products is further set forth in the accompanying claim charts attached as Exhibits KK-RR.

34. Upon information and belief, to the extent Defendant does not perform all limitations in the Inpria Patents, Defendant directly infringes the Inpria Patents, in violation of 35 U.S.C. 271(a), as a joint infringer by exercising direction or control over third parties performance and/or by forming a joint enterprise and/or by conditioning participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method and establishing the manner and timing of that performance, such that performance is attributable to Defendant. For example, to the extent that any third party performs exposure on Defendant’s dry resist products (e.g., LBNL, as discussed above in paragraphs 28-29), Defendant is liable as a joint infringer because that performance is attributable to Defendant. *See, e.g.*, LAM_00000563, LAM_00000571,

LAM_0004792, LAM_0004798, LAM_0004794 (“[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]”)

35. Defendant is also liable for inducing infringement of the Inpria Patents, in violation of 35 U.S.C. § 271(b), by having knowledge of the Inpria Patents and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, direct infringement of the Inpria Patents, with specific intent, by others, such as customers, end users, and material suppliers. For example, upon information and belief, Defendant induces infringement of the Inpria Patents by encouraging, instructing, and aiding (via, e.g., instructions, user guides, technical specifications, and in-person training and instruction) others to use Defendant's dry resist products (e.g., equipment and/or materials) in a manner that directly infringes one or more claims of each Inpria Patent and to make, use, sell, offer to sell, and/or import products (e.g., equipment, materials, semiconductor devices) that directly infringe one or more claims of each Inpria Patent (or is made using an infringing method). Defendant knows that, by providing such instructions, user guides, technical specifications, and in-person training and instruction, others follow these instructions, user guides, technical specifications, and in-person training and instruction and directly infringe one or more claims of each Inpria Patent. Upon information and belief, Defendant is aware that its dry resist products cannot be used in a manner that does not infringe. Therefore, Defendant is aware that others will infringe one or more claims of the Inpria Patents by using Defendant's dry resist products. Defendant thus knows or was willfully blind that its actions actively induce infringement.

36. As explained above in paragraphs 30-31, Defendant has had actual knowledge of, or has been willfully blind to, the Inpria Patents.

37. Defendant's collaborations and marketing activities demonstrate specific intent to induce infringement. For example, Defendant published a press release on July 12, 2022, stating that "Lam Research Corp. (NASDAQ: LRCX), Entegris, Inc. (NASDAQ: ENTG), and Gelest, Inc., a Mitsubishi Chemical Group company, today announced a strategic collaboration that will provide

semiconductor manufacturers worldwide with reliable access to precursor chemicals for Lam's breakthrough dry photoresist technology for extreme ultraviolet (EUV) lithography, an innovative approach used in the production of next-generation semiconductors." *See*

<https://www.prnewswire.com/news-releases/lam-research-entegris-gelest-team-up-to-advance-euv-dry-resist-technology-ecosystem-301584404.html> (last accessed Dec. 10, 2023) (attached as Ex.

U). In the press release, Defendant described its "[d]ry resist technology [as] a breakthrough that shatters the biggest barriers to scaling to future DRAM nodes and logic with EUV lithography."

Ex. U. The press release goes on to quote an Entegris executive, stating "[w]e are proud to be a part of this innovative collaboration to accelerate dry resist adoption and to be a trusted process materials supplier for customers as they push to create the next generation of semiconductors with this important technology." *Id.* The press release also quotes the president of Gelest, stating "[o]ur collaboration with Lam and Entegris to advance dry resists for EUV lithography demonstrates our commitment to support chipmakers as they innovate in materials science." *Id.*

38. Defendant published a press release on June 14, 2022, stating that "Lam Research (Nasdaq: LRCX) today announced that SK hynix Inc. has selected Lam's innovative dry resist fabrication technology as a development tool of record for two key process steps in the production of advanced DRAM chips. *See* <https://www.prnewswire.com/news-releases/lam-research-teams-up-with-sk-hynix-to-enhance-dram-production-cost-efficiency-with-breakthrough-dry-resist-euv-technology-301567359.html> (last accessed Dec. 10, 2023) (attached as Ex. V). According to the press release, "SK hynix intends to use Lam's dry resist underlayer and dry development processes for advanced DRAM patterning." Ex. V. The article goes on to market the benefits of Defendant's dry resist products, explaining that its "dry resist technology offers several advantages over conventional chemically amplified resist patterning for EUV lithography," "significantly enhance[s] EUV sensitivity and the resolution of each wafer pass, enabling patterns to better adhere

to the wafer and improving performance and yield,” and “offers key sustainability benefits by consuming less energy and five to ten times less raw materials than traditional chemical wet resist processes.” *Id.*

39. In the 2021 SPIE presentation (attached as Exhibit R) discussed above, at slides 6 and 8, Defendant showed images of its dry resist products after EUV exposure using “ASML 3400 NXE” and “LBNL MET5”:

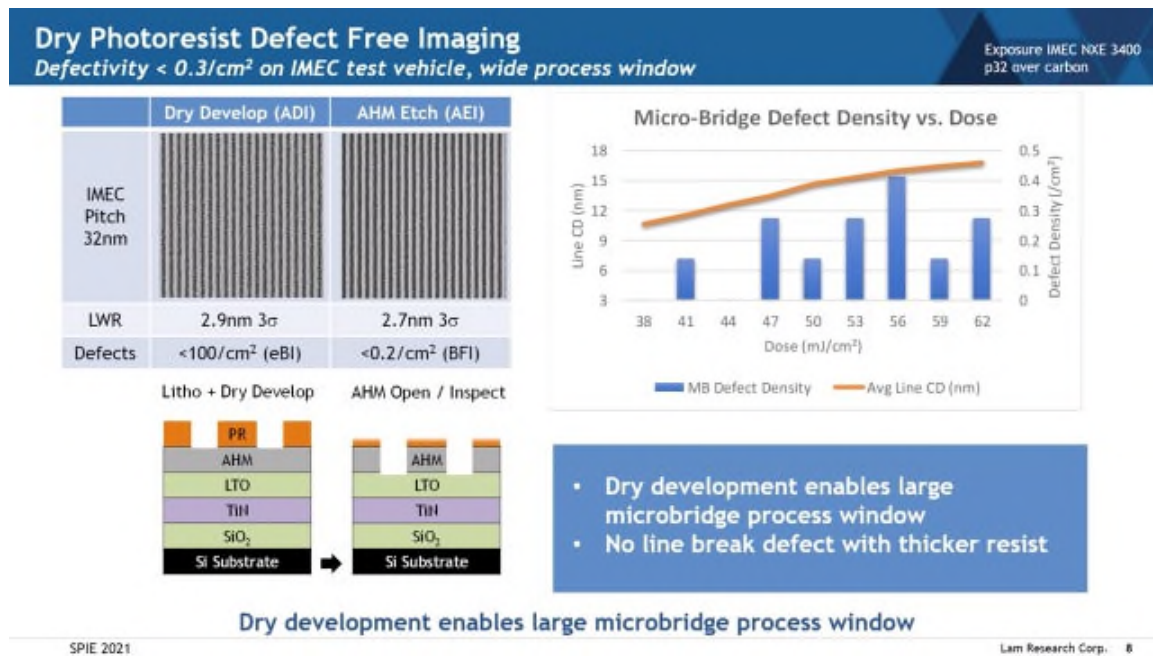
Dry Processed Resist - Wide Exposure Latitude, z-Factor <1 Stable patterns beyond 1.5:1 aspect ratio					
ASML 3400 NXE				LBNL MET5	
Pitch	32nm	28 nm	26nm	20nm	18nm
Deposition	Dry	Dry	Dry	Dry	Dry
Develop	Dry	Dry	Dry	Dry	Dry
Resist Thickness	20nm	20nm	20nm	20nm	20nm
Dose (mJ/cm ²)	42	46	39		
EL _{max} (%)	35	25	26		
LWR _{unbiased} (nm)	3.0	2.9	3.0		
z-factor (10 ⁻⁸ mJ nm ³)	1.6	1.0	0.75		
					
	CD 16.1	CD 14.0	CD 12.9		

$$EL = \frac{|E_{(CD-10\%)} - E_{(CD+10\%)}|}{E_{nom}} \cdot 100\%$$

$$z\text{-Factor} = \left(\frac{\text{pitch}}{z}\right)^3 \times LWR^2 \times \text{dose}$$

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40. MET5 is an EUV projection lithography tool located at LBNL. *See* <https://engineering.lbl.gov/cxro-center-for-x-ray-optics/>. Per slide 8, upon information and belief, the ASML 3400 NXE equipment is located at Interuniversity Microelectronics Centre (“Imec”) in Leuven, Belgium.

41. During Defendant’s Q3 2023 Earnings Call, Defendant stated that two different memory customers adopted its dry resist products: “Last year, we saw the first adoption of our drive development and underlayer plusses for EUV applications by a major memory customer. Our progress extended to include a second large memory player in the March quarter.” Ex. W. Defendant also stated that a “key foundry logic customer” was adopting its dry resist products: “A key foundry logic customer is set to adopt our dry resist deposition, drive development and underlayer solution for their EUV applications.” *Id.* Defendant explained that the result is “a really nice expansion across both memory, which is obviously DRAM using EUV, memory and foundry logic. And I think it sets us up well for continued momentum.” *Id.* Defendant also stated that “we will start recognizing revenues for these products in calendar 2023.” *Id.* Defendant “sized this at approximately \$1.5 billion in revenue over a five-year time frame.” *Id.*

42. Upon information and belief, despite knowing that its actions constituted induced infringement of the Inpria Patents, or had a high likelihood of constituting induced infringement of the Inpria Patents, and/or despite being willfully blind that its actions constituted induced infringement of the Inpria Patents, Defendant nevertheless continued its infringing actions.

43. Upon information and belief, in violation of 35 U.S.C. § 271(c), Defendant has and continues to contribute to the infringement of one or more claims of each Inpria Patent by offering to sell or selling and/or importing a patented component or material and/or apparatus (e.g., equipment and/or material) used to practice one or more claims of each Inpria Patent, constituting a material part of the inventions, knowing the same to be especially made or especially adapted for use in infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use.

44. Defendant is liable for contributory infringement by having knowledge of, or having been willfully blind to, the Inpria Patents and knowingly causing or intending to cause, and continuing to knowingly cause or intend to cause, direct infringement of the Inpria Patents by others, including customers and end users of Defendant's dry resist products and material suppliers.

45. Upon information and belief, Defendant contributes to infringement of the Inpria Patents by, for example, promotion and/or sale of Defendant's dry resist products (e.g., equipment and/or material) to others for their use in making, using, selling, offering for sale, and/or importing products in a manner that directly infringes one or more claims of the Inpria Patents. For example, per the press releases discussed above, Defendant knowingly and intentionally collaborates with others (e.g., Entegris, Inc., Gelest, Inc., SK hynix Inc., memory companies, semiconductor device foundries, LBNL, Imec) relating to the use of Defendant's dry resist products as a component in semiconductor processing, knowing such processing would result in direct infringement. Upon information and belief, Defendant's dry resist products include dry resist equipment that is used

with, for example, precursors supplied by one or more of its collaborators. And, upon information and belief, Defendant is aware that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products.

46. Upon information and belief, in violation of 35 U.S.C. § 271(f)(1), Defendant also infringes because it supplies or causes to be supplied in or from the United States all or a substantial portion of the components of the Inpria Patents, such as the equipment and/or materials discussed above, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States (e.g., in collaboration with others, such as memory customers and semiconductor device foundries) in a manner that would infringe the Inpria Patents if such combination occurred within the United States. Upon information and belief, Defendant infringes by having knowledge of or being willfully blind to the Inpria Patents and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination in a manner that would infringe the Inpria Patents if such combination occurred within the United States, with specific intent. For example, upon information and belief, Defendant infringes by encouraging, instructing, and aiding (via, e.g., instructions, user guides, technical specifications, and in-person training and instruction) others to combine components (e.g., equipment and/or materials) in a manner that would infringe the Inpria Patents if such combination occurred within the United States. Defendant knows that, by providing such instructions, user guides, technical specifications, and in-person training and instruction, others follow these instructions, user guides, technical specifications, and in-person training and instruction and combine the components. Upon information and belief, Defendant is aware that its dry resist products cannot be combined in a manner that would not infringe if combined in the United States. Therefore, Defendant is aware or is willfully blind to the fact that the combination would infringe

one or more claims of the Inpria Patents if the combination occurred in the United States.

Defendant thus knows that its actions constitute infringement.

47. Upon information and belief, in violation of 35 U.S.C. § 271(f)(2), Defendant also infringes because it supplies or causes to be supplied in or from the United States at least one component of the inventions claimed in the Inpria Patents that is especially made or especially adapted for use in the inventions and not a staple article or commodity of commerce suitable for substantial noninfringing use, such as the equipment and/or materials discussed above, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States (e.g., in collaboration with others, such as memory customers and semiconductor device foundries) in a manner that would infringe the Inpria Patents if such combination occurred within the United States. Defendant is liable for infringement by having knowledge of or being willfully blind to the Inpria Patents and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination outside the United States in a manner that would infringe the Inpria Patents if such combination occurred within the United States by others, including customers and end users of Defendant's dry resist products and material suppliers. And, upon information and belief, Defendant is aware and/or willfully blind that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products.

48. Upon information and belief, in violation of 35 U.S.C. § 271(g), Defendant also infringes by, without authority, importing into the United States and/or using, offering to sell, and/or selling in the United States the accused dry resist products made by the patented processes during the term of the Inpria Patents, which are not materially changed by subsequent processes and do not become trivial and nonessential components of another product. For example, upon

information and belief, [REDACTED]

[REDACTED]

[REDACTED]. *See, e.g.,*

LAM_00000686, LAM_00001023, LAM_00001029, LAM_00001038, LAM_00001039, LAM_00001076. Upon information and belief, as discussed above, Defendant has had knowledge of or has been willfully blind to the Inpria Patents and has had knowledge and/or has been willfully blind, and continues to have knowledge and/or be willfully blind, that the accused dry resist products imported into the United States and/or used, offered for sale, and/or sold in the United States have been made by the patented processes during the term of the Inpria Patents, and that such importation, use, offer to sell, and/or sale constitutes infringement under § 271(g).

FIRST CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 10,732,505

49. The facts and allegations of paragraphs 1-48 are incorporated by reference for this First Cause of Action as though fully set forth herein.

50. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 10,732,505, entitled “Organotin oxide hydroxide patterning compositions, precursors, and patterning” (“the ’505 Patent”), which was duly and legally issued on August 4, 2020. A true and correct copy of the ’505 Patent is attached hereto as Exhibit A.

51. In violation of 35 U.S.C. § 271, Defendant has directly infringed and continues to directly infringe, both literally and/or under the doctrine of equivalents, the ’505 Patent by making, using, offering for sale, selling, and/or importing its dry resist product(s) in the United States, without the authority of Inpria.

52. Defendant's dry resist products infringe at least claim 1 of the '505 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit KK.

53. Accordingly, Defendant directly infringes at least claim 1 of the '505 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

54. Defendant has also infringed at least claim 1 of the '505 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 1 of the '505 Patent, as set forth above in at least paragraphs 18-42. Upon information and belief, Defendant takes active steps to induce infringement of at least claim 1 of the '505 Patent by others, including customers, end users, and material suppliers, and Defendant does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware and continues to be aware of and/or was willfully blind to the '505 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 1 of the '505 Patent.

55. Defendant also contributes to the infringement of at least claim 1 of the '505 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45 Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 1 of the '505 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '505 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

56. By way of at least Inpria's Initial Complaint, Defendant knows of the '505 Patent and performs acts that Defendant knows, or should know or was willfully blind, induce and/or contribute to the direct infringement of the '505 Patent.

57. Defendant also infringes at least claim 1 of the '505 Patent, in violation of 35 U.S.C. § 271(g), as set forth above in at least paragraphs 18-48, by without authority importing into the United States and/or using, offering to sell, and/or selling in the United States the accused dry resist products made by the patented process during the term of the '505 Patent, which are not materially changed by subsequent processes and do not become a trivial and nonessential component of another product.

58. Upon information and belief, Defendant knew of or was willfully blind to the '505 Patent and, by way of at least Inpria's Initial Complaint, knows or should have known or was willfully blind that that the accused dry resist products imported into the United States and/or used, offered for sale, and/or sold in the United States have been made by the patented processes during the term of the '505 Patent, and that such importation, use, offer to sell, and/or sale constitutes infringement under § 271(g).

59. Despite Defendant's knowledge of the '505 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '505 Patent.

60. Inpria has been irreparably harmed by Defendant's infringement of the '505 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

61. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for Defendant's infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

SECOND CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 9,823,564

62. The facts and allegations of paragraphs 1-48 are incorporated by reference for this Second Cause of Action as though fully set forth herein.

63. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 9,823,564, entitled “Patterned inorganic layers, radiation based patterning compositions and corresponding methods” (“the ’564 Patent”), which was duly and legally issued on November 21, 2017. A true and correct copy of the ’564 Patent is attached hereto as Exhibit B.

64. Defendant’s dry resist products infringe at least claim 1 of the ’564 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit LL.

65. Accordingly, Defendant directly infringes at least claim 1 of the ’564 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

66. Defendant has also infringed at least claim 1 of the ’564 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 1 of the ’564 Patent, as set forth above in at least paragraphs 18-42. Upon information and belief, Defendant takes active steps to induce infringement of at least claim 1 of the ’564 Patent by others, including customers, end users, and material suppliers, and Defendant does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware and continues to be aware of and/or was willfully blind to the ’564 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 1 of the ’564 Patent.

67. Defendant also contributes to the infringement of at least claim 1 of the '564 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45. Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 1 of the '564 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '564 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

68. By way of at least Inpria's Initial Complaint, Defendant knows of the '564 Patent and performs acts that Defendant knows, or should know, or was willfully blind, induce and/or contribute to the direct infringement of the '564 Patent.

69. Defendant also infringes at least claim 1 of the '564 Patent, in violation of 35 U.S.C. § 271(f)(1), as set forth above in at least paragraphs 18-46, by supply or causing to be supplied in or from the United States all or a substantial portion of the components of the Inpria Patents, such as the equipment and/or materials discussed above, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States (e.g., by others) in a manner that would infringe the '564 Patent if such combination occurred within the United States.

70. Defendant also infringes at least claim 1 of the '564 Patent, in violation of 35 U.S.C. § 271(f)(2), as set forth above in at least paragraphs 18-47, by supplying or causing to be supplied in or from the United States at least one component of the inventions claimed in the Inpria Patents that are especially made or especially adapted for use in the inventions and not a staple article or commodity of commerce suitable for substantial noninfringing use, such as the equipment

and/or materials discussed above, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States (e.g., by others) in a manner that would infringe the '564 Patent if such combination occurred within the United States.

71. Upon information and belief, Defendant infringes by having knowledge of or being willfully blind to the '505 Patent and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination in a manner that would infringe the '505 Patent if such combination occurred within the United States, with specific intent. Upon information and belief, by way of at least Inpria's Initial Complaint, Defendant is aware or is willfully blind to the fact that the combination would infringe one or more claims of the '505 Patent if the combination occurred in the United States, and/or is aware and/or willfully blind that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products. Defendant thus knows or is willfully blind to the fact that its actions constitute infringement under 35 U.S.C. § 271(f).

72. Despite Defendant's knowledge of the '564 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '564 Patent.

73. Inpria has been irreparably harmed by Defendant's infringement of the '564 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

74. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for its infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

THIRD CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 9,310,684

75. The facts and allegations of paragraphs 1-48 are incorporated by reference for this Third Cause of Action as though fully set forth herein.

76. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 9,310,684, entitled “Organometallic solution based high resolution patterning compositions” (“the ’684 Patent”), which was duly and legally issued on April 12, 2016. A true and correct copy of the ’684 Patent is attached hereto as Exhibit C.

77. Defendant’s dry resist products infringe at least claim 10 of the ’684 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit MM.

78. Accordingly, Defendant directly infringes at least claim 10 of the ’684 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

79. Defendant has also infringed at least claim 10 of the ’684 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 10 of the ’684 Patent, as set forth above in at least paragraphs 18-42. Upon information and belief, Defendant takes active steps to induce infringement of at least claim 10 of the ’684 Patent by others, including customers, end users, and material suppliers, and Defendant does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware and continues to be aware of and/or was willfully blind to the ’684 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 10 of the ’684 Patent.

80. Defendant also contributes to the infringement of at least claim 10 of the '684 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45. Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 10 of the '684 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '684 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

81. By way of at least Inpria's Initial Complaint, Defendant knows of the '684 Patent and performs acts that Defendant knows, or should know, or was willfully blind, induce and/or contribute to the direct infringement of the '684 Patent.

82. Defendant also infringes at least claim 10 of the '684 Patent, in violation of 35 U.S.C. § 271(f)(1), as set forth above in at least paragraphs 18-46, by supply or causing to be supplied in or from the United States all or a substantial portion of the components of the Inpria Patents, such as the equipment and/or materials discussed above, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States (e.g., by others) in a manner that would infringe the '684 Patent if such combination occurred within the United States.

83. Defendant also infringes at least claim 10 of the '684 Patent, in violation of 35 U.S.C. § 271(f)(2), as set forth above in at least paragraphs 18-47, by supplying or causing to be supplied in or from the United States at least one component of the inventions claimed in the Inpria Patents that are especially made or especially adapted for use in the inventions and not a staple article or commodity of commerce suitable for substantial noninfringing use, such as the equipment

and/or materials discussed above, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States (e.g., by others) in a manner that would infringe the '684 Patent if such combination occurred within the United States.

84. Upon information and belief, Defendant infringes by having knowledge of or being willfully blind to the '684 Patent and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination in a manner that would infringe the '684 Patent if such combination occurred within the United States, with specific intent. Upon information and belief, by way of at least Inpria's Initial Complaint, Defendant is aware or is willfully blind to the fact that the combination would infringe one or more claims of the '684 Patent if the combination occurred in the United States, and/or is aware and/or willfully blind that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products. Defendant thus knows or is willfully blind to the fact that its actions constitute infringement under 35 U.S.C. § 271(f).

85. Defendant also infringes at least claim 1 of the '684 Patent, in violation of 35 U.S.C. § 271(g), as set forth above in at least paragraphs 18-48 and in Inpria's Initial Infringement Contentions, including Ex. A thereto (served March 29, 2024) (incorporated herein by reference), by without authority importing into the United States and/or using, offering to sell, and/or selling in the United States the accused dry resist products made by the patented process during the term of the '684 Patent, which are not materially changed by subsequent processes and do not become a trivial and nonessential component of another product.

86. Upon information and belief, Defendant knew of or was willfully blind to the '684 Patent and, by way of at least Inpria's Initial Complaint, knows or should have known or was

willfully blind that that the accused dry resist products imported into the United States and/or used, offered for sale, and/or sold in the United States have been made by the patented processes during the term of the '684 Patent, and that such importation, use, offer to sell, and/or sale constitutes infringement under § 271(g).

87. Despite Defendant's knowledge of the '684 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '684 Patent.

88. Inpria has been irreparably harmed by Defendant's infringement of the '684 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

89. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for its infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

FOURTH CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 10,642,153

90. The facts and allegations of paragraphs 1-48 are incorporated by reference for this Fourth Cause of Action as though fully set forth herein.

91. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 10,642,153, entitled "Organometallic solution based high resolution patterning compositions and corresponding methods" ("the '153 Patent"), which was duly and legally issued on May 5, 2020. A true and correct copy of the '153 Patent is attached hereto as Exhibit D.

92. Defendant's dry resist products infringe at least claim 18 of the '153 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit NN.

93. Accordingly, Defendant directly infringes at least claim 18 of the '153 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

94. Defendant has also infringed at least claim 18 of the '153 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 18 of the '153 Patent, as set forth above in at least paragraphs 18-42. Upon information and belief, Defendant takes active steps to induce infringement of at least claim 18 of the '153 Patent by others, including customers, end users, and material suppliers, and Defendant does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware and continues to be aware of and/or was willfully blind to the '153 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 18 of the '153 Patent.

95. Defendant also contributes to the infringement of at least claim 18 of the '153 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45. Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 18 of the '153 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '153 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

96. By way of at least Inpria's First Amended Complaint, Defendant knows of the '153 Patent and performs acts that Defendant knows, or should know, or was willfully blind, induce and/or contribute to the direct infringement of the '153 Patent.

97. Defendant also infringes at least claim 18 of the '153 Patent, in violation of 35 U.S.C. § 271(f)(1), as set forth above in at least paragraphs 18-46, by supply or causing to be supplied in or from the United States all or a substantial portion of the components of the Inpria Patents, such as the equipment and/or materials discussed above, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States (e.g., by others) in a manner that would infringe the '153 Patent if such combination occurred within the United States.

98. Defendant also infringes at least claim 18 of the '153 Patent, in violation of 35 U.S.C. § 271(f)(2), as set forth above in at least paragraphs 18-47, by supplying or causing to be supplied in or from the United States at least one component of the inventions claimed in the Inpria Patents that are especially made or especially adapted for use in the inventions and not a staple article or commodity of commerce suitable for substantial noninfringing use, such as the equipment and/or materials discussed above, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States (e.g., by others) in a manner that would infringe the '153 Patent if such combination occurred within the United States.

99. Upon information and belief, Defendant infringes by having knowledge of or being willfully blind to the '153 Patent and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination in a manner that would infringe the '153 Patent if such combination occurred within the United States, with specific intent. Upon information and belief, by way of at least

Inpria's Initial Complaint, Defendant is aware or is willfully blind to the fact that the combination would infringe one or more claims of the '153 Patent if the combination occurred in the United States, and/or is aware and/or willfully blind that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products. Defendant thus knows or is willfully blind to the fact that its actions constitute infringement under 35 U.S.C. § 271(f).

100. Defendant also infringes at least claim 11 of the '153 Patent, in violation of 35 U.S.C. § 271(g), as set forth above in at least paragraphs 18-48 and in Inpria's Initial Infringement Contentions, including Ex. C thereto (served March 29, 2024) (incorporated herein by reference), by without authority importing into the United States and/or using, offering to sell, and/or selling in the United States the accused dry resist products made by the patented process during the term of the '153 Patent, which are not materially changed by subsequent processes and do not become a trivial and nonessential component of another product.

101. Upon information and belief, Defendant knew of or was willfully blind to the '153 Patent and, by way of at least Inpria's Initial Complaint, knows or should have known or was willfully blind that that the accused dry resist products imported into the United States and/or used, offered for sale, and/or sold in the United States have been made by the patented processes during the term of the '153 Patent, and that such importation, use, offer to sell, and/or sale constitutes infringement under § 271(g).

102. Despite Defendant's knowledge of the '153 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '153 Patent.

103. Inpria has been irreparably harmed by Defendant's infringement of the '153 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

104. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for its infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

FIFTH CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 11,537,048

105. The facts and allegations of paragraphs 1-48 are incorporated by reference for this Fifth Cause of Action as though fully set forth herein.

106. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,537,048, entitled "Organotin oxide hydroxide patterning compositions, precursors, and patterning" ("the '048 Patent"), which was duly and legally issued on December 27, 2022. A true and correct copy of the '048 Patent is attached hereto as Exhibit E.

107. Defendant's dry resist products infringe at least claim 1 of the '048 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit OO.

108. Accordingly, Defendant directly infringes at least claim 1 of the '048 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

109. Defendant has also infringed at least claim 1 of the '048 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 1 of the '048 Patent, as set forth above in at least paragraphs 18-42. Upon information and belief, Defendant takes active steps to induce infringement of at least claim 1 of the '048 Patent by others, including customers, end users, and material suppliers, and Defendant

does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware of and continues to be aware of and/or was willfully blind to the '048 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 1 of the '048 Patent.

110. Defendant also contributes to the infringement of at least claim 1 of the '048 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45. Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 1 of the '048 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '048 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

111. By way of at least Inpria's First Amended Complaint, Defendant knows of the '048 Patent and performs acts that Defendant knows, or should know, or was willfully blind, induce and/or contribute to the direct infringement of the '048 Patent.

112. Defendant also infringes at least claim 1 of the '048 Patent, in violation of 35 U.S.C. § 271(f)(1), as set forth above in at least paragraphs 18-46, by supply or causing to be supplied in or from the United States all or a substantial portion of the components of the Inpria Patents, such as the equipment and/or materials discussed above, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States (e.g., by others) in a manner that would infringe the '048 Patent if such combination occurred within the United States.

113. Defendant also infringes at least claim 1 of the '048 Patent, in violation of 35 U.S.C. § 271(f)(2), as set forth above in at least paragraphs 18-47, by supplying or causing to be supplied in or from the United States at least one component of the inventions claimed in the Inpria Patents that are especially made or especially adapted for use in the inventions and not a staple article or commodity of commerce suitable for substantial noninfringing use, such as the equipment and/or materials discussed above, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States (e.g., by others) in a manner that would infringe the '048 Patent if such combination occurred within the United States.

114. Upon information and belief, Defendant infringes by having knowledge of or being willfully blind to the '048 Patent and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination in a manner that would infringe the '048 Patent if such combination occurred within the United States, with specific intent. Upon information and belief, by way of at least Inpria's Initial Complaint, Defendant is aware or is willfully blind to the fact that the combination would infringe one or more claims of the '048 Patent if the combination occurred in the United States, and/or is aware and/or willfully blind that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products. Defendant thus knows or is willfully blind to the fact that its actions constitute infringement under 35 U.S.C. § 271(f).

115. Despite Defendant's knowledge of the '048 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '048 Patent.

116. Inpria has been irreparably harmed by Defendant's infringement of the '048 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

117. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for its infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

SIXTH CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 11,673,903

118. The facts and allegations of paragraphs 1-48 are incorporated by reference for this Sixth Cause of Action as though fully set forth herein.

119. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,673,903, entitled "Monoalkyl tin compounds with low polyalkyl contamination, their compositions and methods" ("the '903 Patent"), which was duly and legally issued on June 13, 2023. A true and correct copy of the '903 Patent is attached hereto as Exhibit F.

120. Defendant's dry resist products infringe at least claim 1 of the '903 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit PP.

121. Accordingly, Defendant directly infringes at least claim 1 of the '903 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

122. Defendant has also infringed at least claim 1 of the '903 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 1 of the '903 Patent, as set forth above in at least paragraphs 18-42. Upon

information and belief, Defendant takes active steps to induce infringement of at least claim 1 of the '903 Patent by others, including customers, end users, and material suppliers, and Defendant does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware and continues to be aware of and/or was willfully blind to '903 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 1 of the '903 Patent.

123. Defendant also contributes to the infringement of at least claim 1 of the '903 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45. Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 1 of the '903 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '903 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

124. By way of at least Inpria's First Amended Complaint, Defendant knows of the '903 Patent and performs acts that Defendant knows, or should know, or was willfully blind, induce and/or contribute to the direct infringement of the '903 Patent.

125. Defendant also infringes at least claim 1 of the '903 Patent, in violation of 35 U.S.C. § 271(f)(1), as set forth above in at least paragraphs 18-46, by supply or causing to be supplied in or from the United States all or a substantial portion of the components of the Inpria Patents, such as the equipment and/or materials discussed above, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such

components outside of the United States (e.g., by others) in a manner that would infringe the '903 Patent if such combination occurred within the United States.

126. Defendant also infringes at least claim 1 of the '903 Patent, in violation of 35 U.S.C. § 271(f)(2), as set forth above in at least paragraphs 18-47, by supplying or causing to be supplied in or from the United States at least one component of the inventions claimed in the Inpria Patents that are especially made or especially adapted for use in the inventions and not a staple article or commodity of commerce suitable for substantial noninfringing use, such as the equipment and/or materials discussed above, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States (e.g., by others) in a manner that would infringe the '903 Patent if such combination occurred within the United States.

127. Upon information and belief, Defendant infringes by having knowledge of or being willfully blind to the '903 Patent and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination in a manner that would infringe the '903 Patent if such combination occurred within the United States, with specific intent. Upon information and belief, by way of at least Inpria's Initial Complaint, Defendant is aware or is willfully blind to the fact that the combination would infringe one or more claims of the '903 Patent if the combination occurred in the United States, and/or is aware and/or willfully blind that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products. Defendant thus knows or is willfully blind to the fact that its actions constitute infringement under 35 U.S.C. § 271(f).

128. Despite Defendant's knowledge of the '903 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '903 Patent.

129. Inpria has been irreparably harmed by Defendant's infringement of the '903 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

130. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for its infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

SEVENTH CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 11,693,312

131. The facts and allegations of paragraphs 1-48 are incorporated by reference for this Seventh Cause of Action as though fully set forth herein.

132. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,693,312, entitled "Radiation based patterning methods" ("the '312 Patent"), which was duly and legally issued on July 4, 2023. A true and correct copy of the '312 Patent is attached hereto as Exhibit G.

133. Defendant's dry resist products infringe at least claim 1 of the '312 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit QQ.

134. Accordingly, Defendant directly infringes at least claim 1 of the '312 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

135. Defendant has also infringed at least claim 1 of the '312 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 1 of the '312 Patent, as set forth above in at least paragraphs 18-42. Upon information and belief, Defendant takes active steps to induce infringement of at least claim 1 of the '312 Patent by others, including customers, end users, and material suppliers, and Defendant does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware of and continues to be aware of and/or was willfully blind to the '312 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 1 of the '312 Patent.

136. Defendant also contributes to the infringement of at least claim 1 of the '312 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45. Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 1 of the '312 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '312 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

137. By way of at least Inpria's First Amended Complaint, Defendant knows of the '312 Patent and performs acts that Defendant knows, or should know, or was willfully blind, induce and/or contribute to the direct infringement of the '312 Patent.

138. Defendant also infringes at least claim 1 of the '312 Patent, in violation of 35 U.S.C. § 271(f)(1), as set forth above in at least paragraphs 18-46, by supply or causing to be supplied in or from the United States all or a substantial portion of the components of the Inpria

Patents, such as the equipment and/or materials discussed above, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States (e.g., by others) in a manner that would infringe the '312 Patent if such combination occurred within the United States.

139. Defendant also infringes at least claim 1 of the '312 Patent, in violation of 35 U.S.C. § 271(f)(2), as set forth above in at least paragraphs 18-47, by supplying or causing to be supplied in or from the United States at least one component of the inventions claimed in the Inpria Patents that are especially made or especially adapted for use in the inventions and not a staple article or commodity of commerce suitable for substantial noninfringing use, such as the equipment and/or materials discussed above, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States (e.g., by others) in a manner that would infringe the '312 Patent if such combination occurred within the United States.

140. Upon information and belief, Defendant infringes by having knowledge of or being willfully blind to the '312 Patent and knowingly causing or intending to cause and/or being willfully blind to, and continuing to knowingly cause or intend to cause and/or be willfully blind to, the combination in a manner that would infringe the '312 Patent if such combination occurred within the United States, with specific intent. Upon information and belief, by way of at least Inpria's Initial Complaint, Defendant is aware or is willfully blind to the fact that the combination would infringe one or more claims of the '312 Patent if the combination occurred in the United States, and/or is aware and/or willfully blind that its dry resist products cannot be used in a manner that does not infringe, such that there are no substantial non-infringing uses of Defendant's dry resist products. Defendant thus knows or is willfully blind to the fact that its actions constitute infringement under 35 U.S.C. § 271(f).

141. Despite Defendant's knowledge of the '312 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '312 Patent.

142. Inpria has been irreparably harmed by Defendant's infringement of the '312 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

143. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for its infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

EIGHTH CAUSE OF ACTION

INFRINGEMENT OF U.S. PATENT NO. 11,809,081

144. The facts and allegations of paragraphs 1-48 are incorporated by reference for this Eighth Cause of Action as though fully set forth herein.

145. Inpria is now, and has been since its issuance, the assignee and sole owner of all right, title, and interest in United States Patent No. 11,809,081, entitled "Organotin oxide hydroxide patterning compositions, precursors, and patterning" ("the '081 Patent"), which was duly and legally issued on November 7, 2023. A true and correct copy of the '081 Patent is attached hereto as Exhibit H.

146. Defendant's dry resist products infringe at least claim 1 of the '081 Patent, as set forth above in paragraphs 18-34 and in the accompanying claim chart attached as Exhibit RR.

147. Accordingly, Defendant directly infringes at least claim 1 of the '081 Patent, in violation of 35 U.S.C. § 271(a), both literally and under the doctrine of equivalents. Inpria expressly reserves the right to assert additional claims in this litigation against the same or additional products of Defendant, in accordance with the rules of this Court.

148. Defendant has also infringed at least claim 1 of the '081 Patent, in violation of 35 U.S.C. § 271(b), by inducing others, including customers, end users, and material suppliers, to infringe at least claim 1 of the '081 Patent, as set forth above in at least paragraphs 18-42. Upon information and belief, Defendant takes active steps to induce infringement of at least claim 1 of the '081 Patent by others, including customers, end users, and material suppliers, and Defendant does so knowing that those steps will induce, encourage and facilitate direct infringement by others. Upon information and belief, Defendant was aware of and continues to be aware of and/or was willfully blind to the '081 Patent and knew or knows or should have known or was willfully blind that such activities induce others to directly infringe at least claim 1 of the '081 Patent.

149. Defendant also contributes to the infringement of at least claim 1 of the '081 Patent, in violation of 35 U.S.C. § 271(c), by others, including customers, end users, and material suppliers, as set forth above in at least paragraphs 18-45. Acts by Defendant that contribute to the infringement of others include, but are not limited to, the use, sale or provision of the dry resist products to end users of the dry resist products. The accused dry resist products are especially made or adapted for use to infringe at least claim 1 of the '081 Patent and are at least a material part of those claims. The dry resist products, including the functionality contributing to infringement of the '081 Patent, are not a staple article or commodity of commerce suitable for substantial noninfringing use.

150. By way of at least Inpria's First Amended Complaint, Defendant knows of the '081 Patent and performs acts that Defendant knows, or should know, or was willfully blind, induce and/or contribute to the direct infringement of the '081 Patent.

151. Defendant also infringes at least claim 1 of the '081 Patent, in violation of 35 U.S.C. § 271(g), as set forth above in at least paragraphs 18-48, by without authority importing into the United States and/or using, offering to sell, and/or selling in the United States the accused dry

resist products made by the patented process during the term of the '081 Patent, which are not materially changed by subsequent processes and do not become a trivial and nonessential component of another product.

152. Upon information and belief, Defendant knew of or was willfully blind to the '081 Patent and, by way of at least Inpria's Initial Complaint, knows or should have known or was willfully blind that that the accused dry resist products imported into the United States and/or used, offered for sale, and/or sold in the United States have been made by the patented processes during the term of the '081 Patent, and that such importation, use, offer to sell, and/or sale constitutes infringement under § 271(g).

153. Despite Defendant's knowledge of the '081 Patent and its ongoing infringement, Defendant has continued to manufacture, use, sell, offer for sale, and/or import the accused dry resist products in a manner that willfully infringes the '081 Patent.

154. Inpria has been irreparably harmed by Defendant's infringement of the '081 Patent and will continue to be harmed unless and until Defendant's infringement is enjoined by this Court.

155. Inpria has been damaged as a result of Defendant's infringing conduct. Defendant is therefore liable to Inpria for damages in an amount that adequately compensates for its infringement, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Inpria requests the following relief:

- (a) judgment that Defendant infringes the '505 Patent;
- (b) judgment that Defendant infringes the '564 Patent;
- (c) judgment that Defendant infringes the '684 Patent;
- (d) judgment that Defendant infringes the '153 Patent;

- (e) judgment that Defendant infringes the '048 Patent;
- (f) judgment that Defendant infringes the '903 Patent;
- (g) judgment that Defendant infringes the '312 Patent;
- (h) judgment that Defendant infringes the '081 Patent;
- (i) enter an order permanently enjoining Defendant and its officers, agents, employees, attorneys, parent company, and all persons in active concert or participation with any of them, from infringing the '505, '564, '684, '153, '048, '903, '312, and/or '081 Patents;
- (j) award Inpria damages in an amount sufficient to compensate it for Defendant's infringement of one or more claims of the '505, '564, '684, '153, '048, '903, '312, and/or '081 Patents, together with pre-judgment and post-judgment interest and costs, and all other damages permitted under 35 U.S.C. § 284;
- (k) treble the damages awarded to Inpria under 35 U.S.C. § 284 by reason of Defendant's willful infringement of one or more claims of the '505, '564, '684, '153, '048, '903, '312, and/or '081 Patents;
- (l) an accounting for infringing sales not presented at trial and an award by the Court of additional damages for any such infringing sales;
- (m) declare this case to be "exceptional" under 35 U.S.C. § 285 and award Inpria its attorneys' fees, expenses, and costs incurred in this action; and
- (n) such other and further relief as the Court finds just and proper.

JURY DEMAND

Plaintiff Inpria requests trial by jury.

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Dated: September 3, 2024

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on September 3, 2024, a copy of the foregoing document was served on the counsel listed below in the manner indicated:

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