

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

<b>MOLECULAR REBAR DESIGN, LLC AND BLACK DIAMOND STRUCTURES, LLC,</b>	§	
	§	
	§	
	§	
Plaintiffs,	§	C.A. No.
	§	
v.	§	
	§	
<b>LG CHEM, LTD., LG ENERGY SOLUTION, LTD., LG ENERGY SOLUTION MICHIGAN, INC., AND LG ELECTRONICS, INC.,</b>	§	JURY DEMAND
	§	
	§	
Defendants.	§	

**ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT**

**NATURE OF ACTION**

1. Plaintiffs Molecular Rebar Design, LLC and Black Diamond Structures, LLC (collectively, “Plaintiffs”) file this Complaint for patent infringement under 35 U.S.C. § 271 against LG Chem, Ltd., LG Energy Solution, Ltd., LG Energy Solution Michigan, Inc., and LG Electronics, Inc. (collectively, “Defendants”) and allege as follows:

**OVERVIEW**

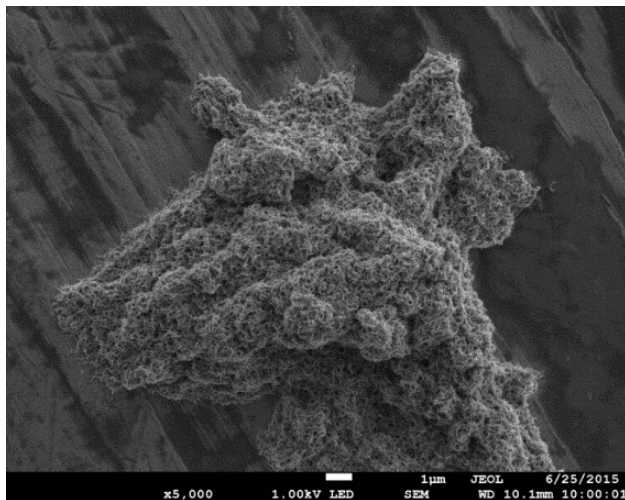
2. This is an action for infringement of U.S. Patent Nos. 8,475,961 (“the ’961 Patent”), 9,636,649 (“the ’649 Patent”), and 10,608,282 (“the ’282 Patent”) (collectively “the Asserted Patents”) under the patent laws of the United States, 35 U.S.C. §§ 1, *et seq.*

3. Molecular Rebar Design, LLC (“MRD”), formed in 2012 and based in Austin, Texas, along with its affiliated predecessors going back to in or around 2009, recognized that there was a significant gap between the theoretical performance of carbon nanotubes (CNTs) and their

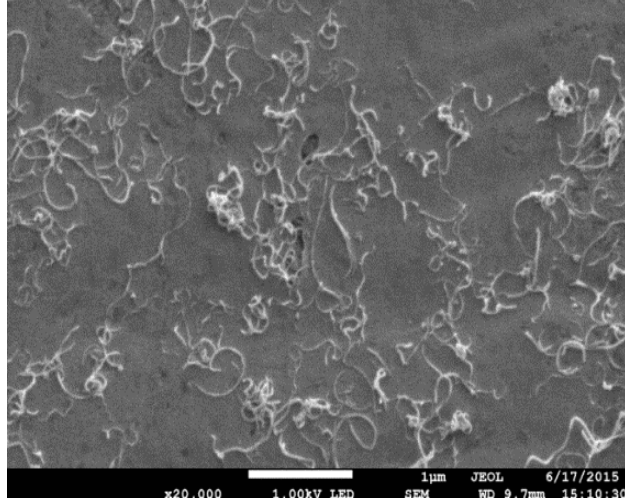
commercial viability because of their poor dispersibility. MRD has bridged that gap with unique capabilities to provide discrete, and optionally surface tailored carbon nanotubes.

4. MRD, with its extensive laboratory capabilities and multi-disciplinary nanotechnology expertise, has developed and commercialized a breakthrough form of modified CNTs called MOLECULAR REBAR® materials. These are the world's first CNTs that were substantially disentangled from the usual clumping and individualized through patent-protected processes which enable significantly enhanced performance for a myriad of high-value materials. MRD's cutting-edge technologies are protected by over 35 U.S. patents and over 80 foreign patents.

5. Example of bundled, non-discrete, multi-walled carbon nanotubes:



6. Example of disaggregated, de-bundled, discrete, exfoliated multi-walled carbon nanotubes:



7. Black Diamond Structures, LLC (“BDS”), formed in 2014, is a global nanotechnology leader partnering with manufacturers to create next generation world-class batteries. BDS’s products are based on MRD’s proprietary MOLECULAR REBAR® technology.

8. MRD is owner of the Asserted Patents, and BDS has an exclusive license to the Asserted Patents from MRD. MRD and BDS together possess all rights in the Asserted Patents to bring this lawsuit and seek all relief and damages for the patent infringement alleged herein.

#### **THE PARTIES**

9. MRD is a Delaware limited liability company with a principal place of business at 13477 Fitzhugh Rd, Austin, TX 78736.

10. BDS is a Delaware limited liability company with a principal place of business at 12310 Trail Driver, Austin, TX 78737.

11. On information and belief, Defendant LG Chem, Ltd. is a South Korean corporation with its principal place of business at 128 Yeoui-daero, Yeongdeungpo-gu, Seoul 7336, South Korea.

12. On information and belief, Defendant LG Energy Solution, Ltd. (“LGES”) is a corporation organized under the laws of South Korea, having a principal place of business at 108 Yeouidaero, Yeongdeungpo-gu, Seoul 07335, South Korea.

13. On information and belief, Defendant LG Energy Solution Michigan, Inc. (“LGESM”) is a corporation organized and existing under the laws of the State of Delaware and maintains its principal place of business at 1 LG Way, Holland, Michigan 49423.

14. On information and belief, LGESM is a wholly owned subsidiary of LGES and was formerly named LG Chem Michigan, Inc., until its name was changed to LG Energy Solution Michigan, Inc. on or about December 1, 2020.

15. On information and belief, LGESM may be served with process through its registered agent Corporation Service Company at 251 Little Falls Drive, Wilmington, Delaware 19808.

16. Defendants LG Chem, Ltd., LG Energy Solution, Ltd., and LG Energy Solution Michigan, Inc. are referred to collectively as “LG Chem.”

17. On information and belief, Defendant LG Electronics, Inc. (“LGE”) is a South Korean corporation with a principal place of business at LG Twin Towers, 128 Yeoui-daero, Yeongdungpo-gu, Seoul, 07366, South Korea.

#### **JURISDICTION AND VENUE**

18. This Court has exclusive subject matter jurisdiction over this case under 28 U.S.C. §§ 1331 and 1338.

19. Venue is proper in this Court under 28 U.S.C. §§ 1391 and 1400(b). LG Chem, Ltd., LG Energy Solution, Ltd., and LG Electronics, Inc. are foreign entities, and thus, venue is proper in this judicial district. On information and belief, all of the Defendants have committed

acts of infringement in this judicial district and have purposefully transacted business involving the accused products in the United States and this judicial district.

20. This Court has personal jurisdiction over the Defendants because: (1) Plaintiffs' claims arise in whole or in part from Defendants' conduct in the State of Delaware; (2) LG Chem, Ltd. has sought the protection and benefit from the laws of the State of Delaware and regularly conducts business in the State of Delaware by incorporating subsidiaries, including LG Energy Solution Michigan, Inc., in the State of Delaware; (3) all of the Defendants regularly conduct business throughout the United States, including the State of Delaware, and contract to supply services or things in Delaware; (4) all of the Defendants have contacts purposefully directed at the United States and the State of Delaware and have continuous and systematic contacts with the United States and the State of Delaware; (5) all of the Defendants have placed infringing products into the stream of commerce through an established distribution channel with the expectation or knowledge that they will be purchased by consumers in the United States and the State of Delaware; and (6) all of the Defendants have caused tortious injury in the State of Delaware.

21. Defendant LG Chem, Ltd. maintains a United States version of its website at <https://www.lgchem.com/us/main>. On this website, LG Chem, Ltd. provides information regarding its activities and products, including LG Chem, Ltd.'s Lithium Batteries, which include the infringing batteries and systems. On information and belief, LG Chem, Ltd.'s website is directed to marketing, offering for sale, and sales of its products and services in the United States and in the State of Delaware.

22. Defendant LG Electronics, Inc. maintains a United States version of its website at <https://www.lg.com/us>. On this website, LG Electronics, Inc. provides information regarding its activities and products. On information and belief, LG Electronics, Inc.'s website is directed to

marketing, offering for sale, and sales of its products and services in the United States and in the State of Delaware.

23. Defendant LG Energy Solution, Ltd. maintains an English version of its website at <https://www.lgensol.com/en>. On this website, LGES provides information regarding its activities and products, including information relating to its manufacturing facility in Holland, Michigan. On information and belief, LGES's website is directed to marketing, offering for sale, and sales of its products and services in the United States and in the State of Delaware.

24. Defendants LG Chem, Ltd., LG Energy Solution, Ltd., and LG Electronics, Inc. have also derived benefits from the laws of the United States. For example, Defendants LG Chem, Ltd., LG Energy Solution, Ltd., and LG Electronics, Inc. have filed litigations in the United States, including based on claims for patent infringement. On information and belief, Defendants LG Chem, Ltd., LG Energy Solution, Ltd., and LG Electronics, Inc. derive substantial revenues from their regularly conducted business activities throughout the United States and the State of Delaware. On information and belief, Defendants LG Chem, Ltd., LG Energy Solution, Ltd., and LG Electronics, Inc. receive substantial revenue from their activities and the activities of their U.S. subsidiaries in the United States. On information and belief, Defendants LG Chem, Ltd., LG Energy Solution, Ltd., and LG Electronics, Inc. are in regular contact with their subsidiaries and affiliates in the United States and direct communication into the United States.

#### **THE ASSERTED PATENTS**

25. On July 2, 2013, the United States Patent and Trademark Office duly and legally issued the '961 Patent, titled "HIGH PERFORMANCE ENERGY STORAGE AND COLLECTION DEVICES CONTAINING EXFOLIATED MICROTUBULES AND SPATIALLY CONTROLLED ATTACHED NANOSCALE PARTICLES AND LAYERS." The '961 Patent has a filing date of December 14, 2010 and claims benefit to a provisional filing date

filed on December 18, 2009. Plaintiffs own all rights to the '961 Patent necessary to bring this action, including the exclusive right to recover for past infringement. A true and correct copy of the '961 Patent is attached as Exhibit 1 hereto.

26. The '961 Patent describes energy storage or collection devices and methods for making such devices having electrode materials containing exfoliated carbon nanotubes with attached electro- or photoactive nanoscale particles or layers. The exfoliated carbon nanotubes and attached nanoscale particles or layers may be fabricated by methods such as coating, solution or casting or melt extrusion to form electrodes. Electrolytes may also be used for dispersing nanotubes and also in a polymeric form to allow melt fabrication methods.

27. On May 2, 2017, the United States Patent and Trademark Office duly and legally issued the '649 Patent, titled "DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS." The '649 Patent has a filing date of October 7, 2016 and a priority filing date of December 14, 2010. Plaintiffs own all rights to the '649 Patent necessary to bring this action, including the exclusive right to recover for past infringement. A true and correct copy of the '649 Patent is attached as Exhibit 2 hereto.

28. The '649 Patent describes carbon nanotubes as composites with materials such as elastomers, thermosets and thermoplastics or aqueous dispersions of open-ended carbon nanotubes with additives. A further feature of this invention relates to the development of a concentrate of carbon nanotubes with an elastomer wherein the concentrate can be further diluted with an elastomer and other polymers and fillers using conventional melt mixing equipment.

29. On March 31, 2020, the United States Patent and Trademark Office duly and legally issued the '282 Patent, titled "BINDERS, ELECTROLYTES AND SEPARATOR FILMS FOR ENERGY STORAGE AND COLLECTION DEVICES USING DISCRETE CARBON

NANOTUBES.” The ’282 Patent has a filing date of January 26, 2018 and an effective filing date of June 21, 2012. Plaintiffs own all rights to the ’282 Patent necessary to bring this action, including the exclusive right to recover for past infringement. A true and correct copy of the ’282 Patent is attached as Exhibit 3 hereto.

30. The ’282 Patent describes in various embodiments an improved binder composition, electrolyte composition and a separator film composition using discrete carbon nanotubes. Their methods of production and utility for energy storage and collection devices, like batteries, capacitors and photovoltaics, is described. The binder, electrolyte, or separator composition can further comprise polymers. The discrete carbon nanotubes further comprise at least a portion of the tubes being open ended and/or functionalized. The utility of the binder, electrolyte or separator film composition includes improved capacity, power or durability in energy storage and collection devices. The utility of the electrolyte and or separator film compositions includes improved ion transport in energy storage and collection devices.

#### **GENERAL ALLEGATIONS**

31. Plaintiffs incorporate by reference the preceding paragraphs.

32. The products that infringe one or more claims of the Asserted Patents include but are not limited to Defendants’ HG2, HG6, and MJ1 batteries (“Accused Products”). *See, e.g.*, Exhibit 4 attached hereto (HG2 datasheet); Exhibit 5 attached hereto (HG6 datasheet); Exhibit 6 attached hereto (MJ1 datasheet).

33. On information and belief, LG Chem has and continues to directly infringe one or more claims of each of the Asserted Patents in violation of 35 U.S.C. § 271(a).

34. On information and belief, LG Chem has and continues to indirectly infringe and/or contribute to the infringement of one or more claims of each of the Asserted Patents in violation of 35 U.S.C. § 271 (b) and (c) at least based on its activities in Michigan.



35. On information and belief, LGE has and continues to directly and indirectly infringe one or more claims of each of the Asserted Patents in violation of 35 U.S.C. §§ 271(a), (b), and (c).

36. Defendants are knowledgeable about the Asserted Patents and their infringing acts at least as of the date on which they are properly served with this Complaint.

37. Defendants' acts of infringement have caused damage to Plaintiffs. Plaintiffs are entitled to recover from Defendants the past damages sustained by Plaintiffs as a result of Defendants' wrongful acts in an amount to be proven at trial. In the event Defendants are not enjoined from future infringing activity, Plaintiffs are also entitled to recover from Defendants a compulsory future royalty payable on each infringing product made, used, or sold by Defendants following trial or that is not captured in the damages awarded to Plaintiffs.

#### **CLAIMS FOR PATENT INFRINGEMENT**

38. Plaintiffs incorporate by reference the preceding paragraphs.

39. Plaintiffs identify below exemplary claims of the Asserted Patents to demonstrate infringement by exemplary products. However, the selection of exemplary claims and exemplary products should not be considered limiting, and additional infringing products and infringed claims of the Asserted Patents will be disclosed in compliance with the Court's rules related to infringement contentions as discovery progresses.

#### **COUNT I: INFRINGEMENT OF THE '961 PATENT**

40. Plaintiffs incorporate by reference the preceding paragraphs.

41. On information and belief, LGE directly infringes, induces the infringement of, and contributes to the infringement of one or more claims of the '961 Patent, including at least claim 1, either literally or under the doctrine of equivalents.

42. On information and belief, LGE directly infringes the '961 Patent by, for example, assembling, or causing to have assembled, one or more of the Accused Products for use in third party electric vehicles.

43. On information and belief, LGE induces the infringement of the '961 Patent by third parties, including without limitation automobile manufactures or other device makers, by actively encouraging third parties to make, use, offer to sell, sell, or import into the United States, for example, electric vehicles or other consumer electronics containing the infringing battery technologies. For example, LGE instructs, offers, or encourages third party automobile manufacturers to use one or more of the Accused Products in electric vehicles.

44. On information and belief, LGE contributes to the infringement of the '961 Patent by offering to sell or selling within the United States or importing into the United States infringing battery technologies for use in at least electric vehicles or other consumer electronics sold in the United States, knowing the infringing battery technologies to be especially-made components that have no substantial non-infringing use.

45. On information and belief, LG Chem at least induces the infringement of one or more claims of the '961 Patent, including at least claim 1, either literally or under the doctrine of equivalents.

46. On information and belief, LG Chem induces LGE to infringe the '961 Patent by instructing, offering, and encouraging LGE to use LG Chem's infringing battery technologies in LGE products.

47. On information and belief, LG Chem designs battery cells for the United States EV market and competes for business that it knows is directed to downstream products designated for the United States market. For example, LGES maintains a website specifically tailored for the

United States and notes that it supplies automotive batteries for automobiles that are sold and offered for sale in the United States. *See* <https://www.lgensol.com/en/business-automotive-battery> (last accessed August 10, 2022).

48. On information and belief, LG Chem has directly infringed and/or contributed to the infringement of, and will continue to infringe and/or contribute to the infringement of, one or more claims of the '961 Patent at least based on its activities in Michigan. *See, e.g., LG Chem, Ltd. v. SK Innovation Co., Ltd.*, 1:19-cv-00776 (D. Del. April 29, 2019), Complaint, ¶ 29 (“LG CMI also has research and development, testing and engineering, manufacturing, sales and marketing, and business offices in Troy, Michigan, where it has invested many millions of dollars and employs hundreds of workers. Through its facilities in Michigan, LGC supplies millions of battery cells each year to automotive manufacturers including General Motors and Chrysler.”); *LG Energy Solution, Ltd. et al. v. SK Innovation Co., Ltd. et al.*, 19-cv-1805-CFC, D.I. 12-1 (D. Del. Jan. 5, 2021) (“LGES has extensive involvement in the U.S. market with its innovative battery technology. In fact, LGES and its subsidiary LG Energy Solution Michigan [,] Inc. [ ] supply, through plants in Michigan[,], millions of battery cells to U.S. companies like General Motors and Chrysler. For example, LGESMI has invested hundreds of millions of dollars in a facility in Holland, Michigan, which employs hundreds of workers making lithium-ion batteries for electric vehicles (EVs).”).

49. Further, on information and belief, LG Chem contributes to the infringement of the '961 Patent by offering to sell or selling within the United States or importing into the United States infringing battery technologies for use in at least electric vehicles or other consumer electronics sold in the United States, knowing the infringing battery technologies to be especially-made components that have no substantial non-infringing use. *See, e.g.,*

<https://www.lgchem.com/company/company-information/global-network/overseas-corporation/america> (last accessed August 29, 2022).

50. Defendants are knowledgeable about the '961 Patent and infringing acts alleged herein at least as of the date on which they are served with this Complaint.

51. Defendants' infringing acts have been without the permission, consent, authorization, or license of Plaintiffs.

52. Claim 1 of the '961 Patent recites as follows:

1. An energy storage and collection device comprising:

a) at least two electrodes;

b) at least one of the electrodes containing carbon or mineral nanotubes that have been exfoliated from their as-synthesized state and have attached electroactive or photo active nanoscale particles or layers;

c) at least two current collectors, each in contact with an electrode, or the electrode also functions as the current collector; and

d) optionally an insulator.

53. Defendants, by the Accused Products, infringe at least claim 1 of the '961 Patent.

54. Each of the Accused Products is an energy storage and collection device.

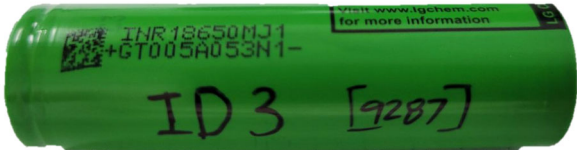
**LG HG2**



**LG HG6**



**LG MJ1**



55. The Accused Products have at least two electrodes, namely, for example, cathode active materials laminated on to aluminum current collectors and anode active materials laminated on to copper current collectors, with tabs protruding from opposite ends of the cylinder.

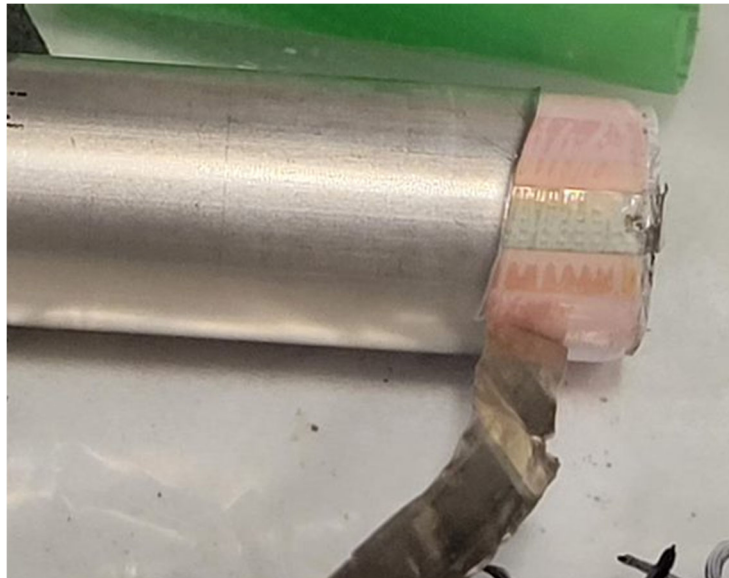
**LG HG2**



**LG HG6**



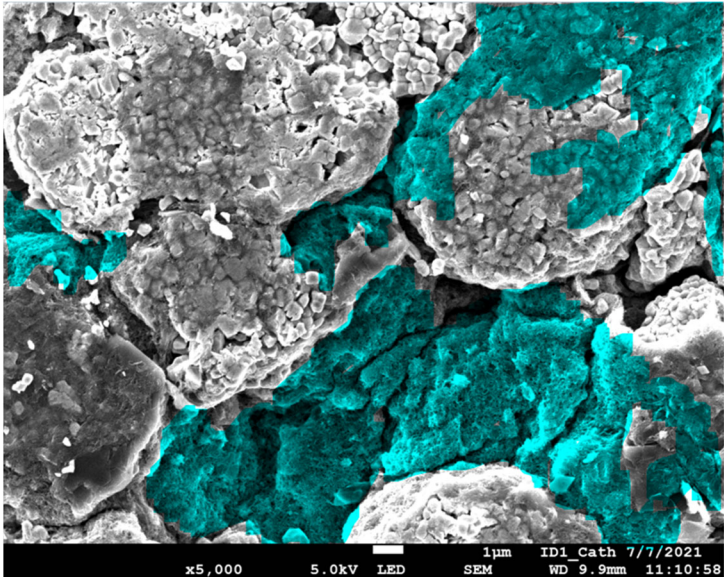
**LG MJ1**



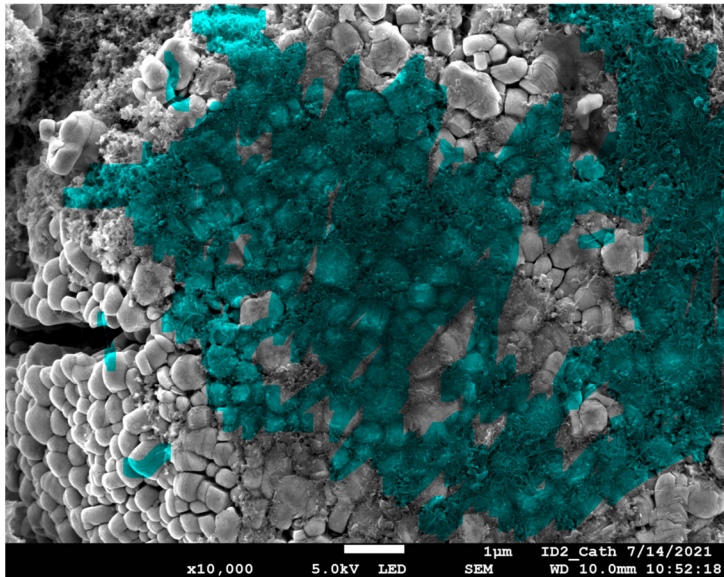
56. At least one of the electrodes of each of the Accused Products contain carbon or mineral nanotubes (reflected by the blue highlighted regions in the below scanning electron microscope (SEM) images).



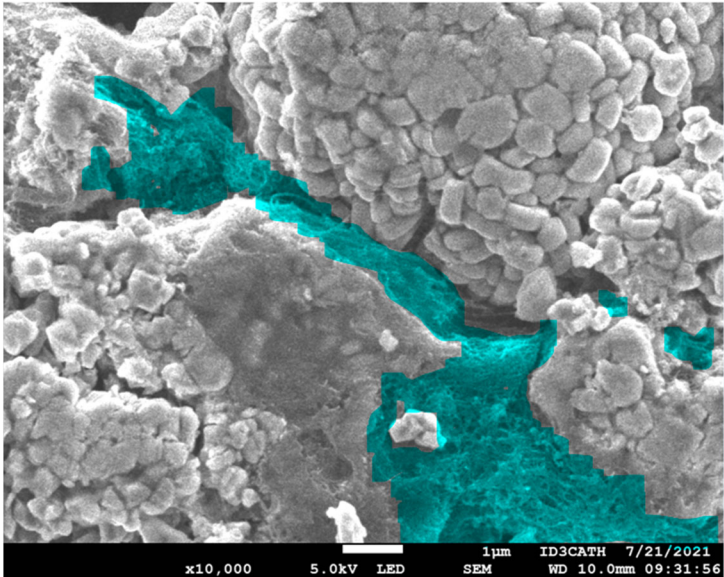
**LG HG2**



**LG HG6**

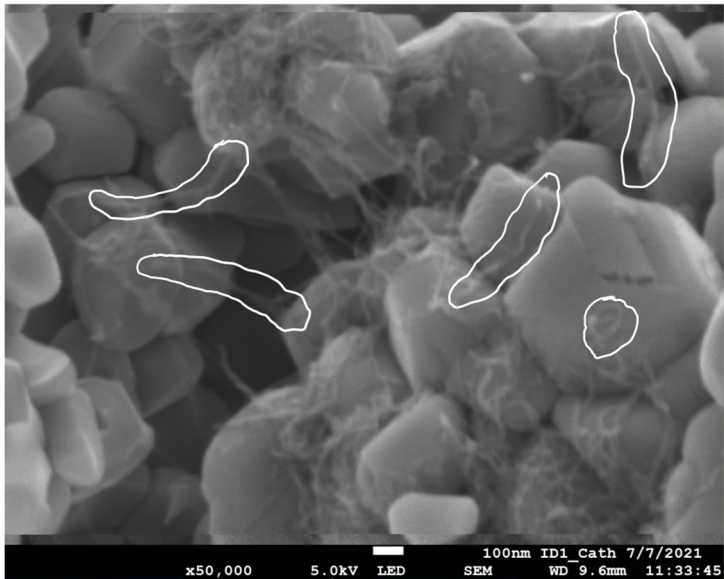


**LG MJ1**



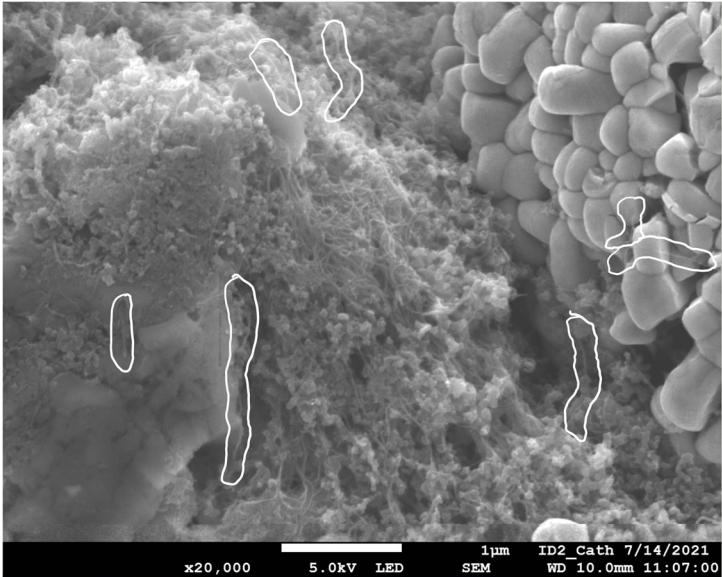
57. The aforementioned CNTs of the Accused Products have been exfoliated (de-aggregated, separated, individualized) as shown by the white circled regions in the below SEM images.

**LG HG2**

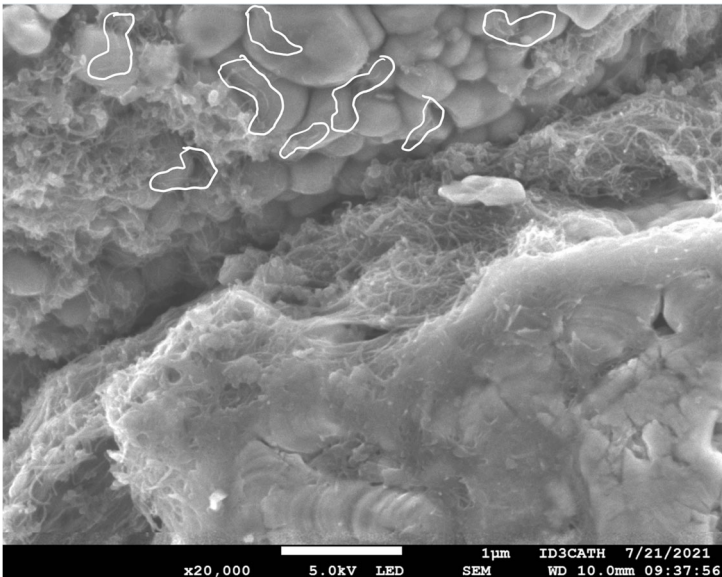




**LG HG6**

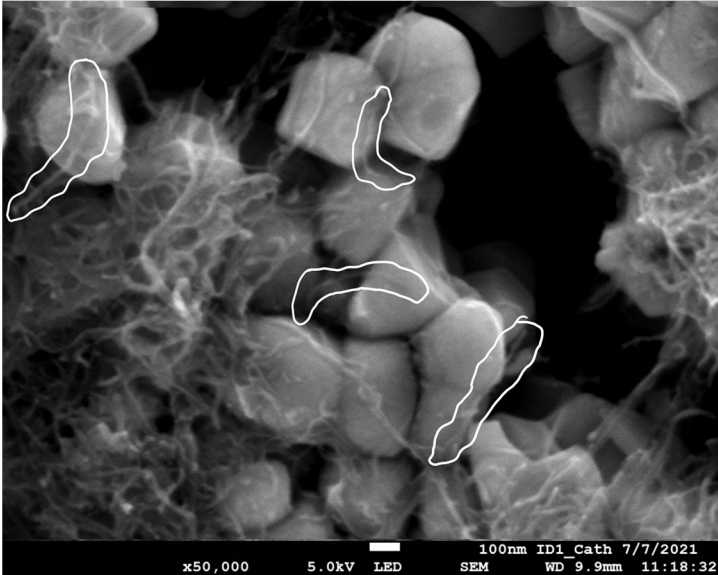


**LG MJ1**

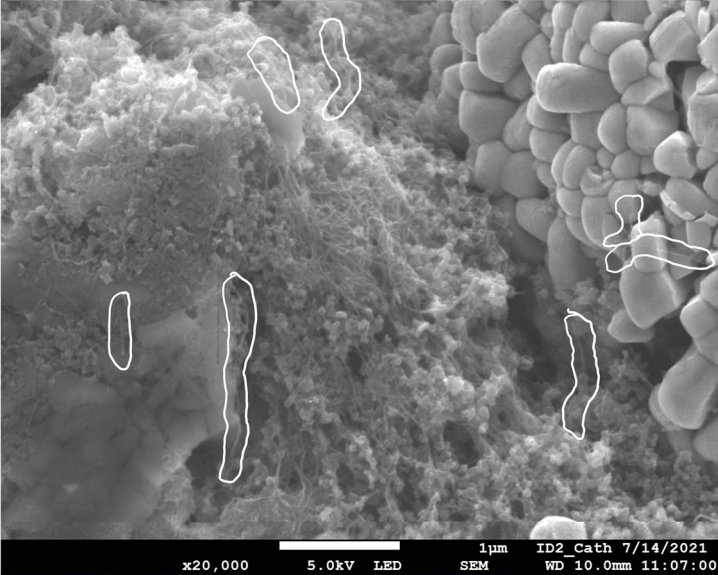


58. The aforementioned CNTs have attached electroactive or photo active nanoscale particles or layers as shown by the white circled regions in the below SEM images.

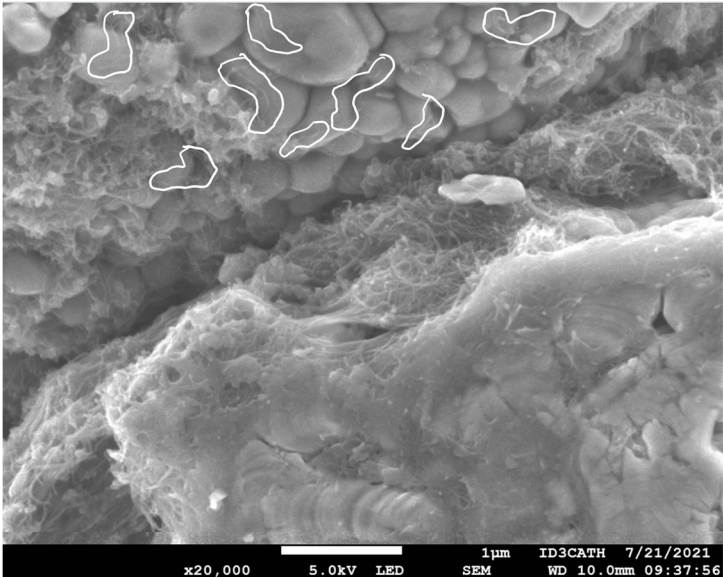
**LG HG2**



**LG HG6**



**LG MJ1**



59. The Accused Products have at least two current collectors – e.g., the anode (copper, orange/shiny) and the cathode (aluminum, silver/shiny).

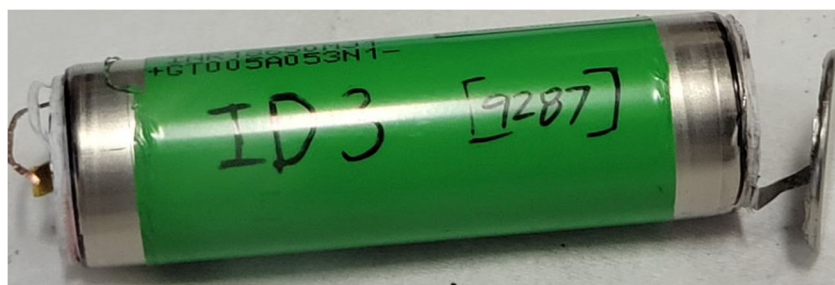
**LG HG2**



**LG HG6**



**LG MJ1**



60. The Accused Products use electrodes laminated (deposited as a liquid slurry and dried) to the current collector (anode – copper, cathode – aluminum).

61. The Accused Products have an insulator functioning to physically distance the anode and cathode electrodes (white wrapping in images above).

**COUNT II: INFRINGEMENT OF THE '649 PATENT**

62. Plaintiffs incorporate by reference the preceding paragraphs.

63. On information and belief, LGE directly infringes, induces the infringement of, and contributes to the infringement of one or more claims of the '649 Patent, including at least claim 1, either literally or under the doctrine of equivalents.

64. On information and belief, LGE directly infringes the '649 Patent by, for example, assembling, or causing to have assembled, one or more of the Accused Products for use in third party electric vehicles.

65. On information and belief, LGE induces the infringement of the '649 Patent by third parties, including without limitation automobile manufactures, by actively encouraging third parties to make, use, offer to sell, sell, or import into the United States, electric vehicles containing the infringing battery technologies. For example, LGE instructs, offers, or encourages third party automobile manufacturers to use one or more of the Accused Products in electric vehicles.

66. On information and belief, LGE contributes to the infringement of the '649 Patent by offering to sell or selling within the United States or importing into the United States infringing battery technologies for use in at least electric vehicles sold in the United States, knowing the infringing battery technologies to be especially-made components that have no substantial non-infringing use.

67. On information and belief, LG Chem at least induces the infringement of one or more claims of the '649 Patent, including at least claim 1, either literally or under the doctrine of equivalents.

68. On information and belief, LG Chem induces LGE to infringe the '649 Patent by instructing, offering, and encouraging LGE to use LG Chem's infringing battery technologies in LGE products.

69. On information and belief, LG Chem designs battery cells for the United States EV market and competes for business that it knows is directed to downstream products designated for the United States market. For example, LGES maintains a website specifically tailored for the United States and notes that it supplies automotive batteries for automobiles that are sold and offered for sale in the United States. See <https://www.lgensol.com/en/business-automotive-battery> (last accessed August 10, 2022).

70. On information and belief, LG Chem has directly infringed and/or contributed to the infringement of, and will continue to infringe and/or contribute to the infringement of, one or more claims of the '649 Patent at least based on its activities in Michigan. *See, e.g., LG Chem, Ltd. v. SK Innovation Co., Ltd.*, 1:19-cv-00776 (D. Del. April 29, 2019), Complaint, ¶ 29 (“LG CMI also has research and development, testing and engineering, manufacturing, sales and marketing, and business offices in Troy, Michigan, where it has invested many millions of dollars and employs hundreds of workers. Through its facilities in Michigan, LGC supplies millions of battery cells each year to automotive manufacturers including General Motors and Chrysler.”); *LG Energy Solution, Ltd. et al. v. SK Innovation Co., Ltd. et al.*, 19-cv-1805-CFC, D.I. 12-1 (D. Del. Jan. 5, 2021) (“LGES has extensive involvement in the U.S. market with its innovative battery technology. In fact, LGES and its subsidiary LG Energy Solution Michigan [,] Inc. [ ] supply, through plants in Michigan[,], millions of battery cells to U.S. companies like General Motors and Chrysler. For example, LGESMI has invested hundreds of millions of dollars in a facility in Holland, Michigan, which employs hundreds of workers making lithium-ion batteries for electric vehicles (EVs).”).

71. Further, on information and belief, LG Chem contributes to the infringement of the '961 Patent by offering to sell or selling within the United States or importing into the United States infringing battery technologies for use in at least electric vehicles or other consumer electronics sold in the United States, knowing the infringing battery technologies to be especially-made components that have no substantial non-infringing use. *See, e.g.,* <https://www.lgchem.com/company/company-information/global-network/overseas-corporation/america> (last accessed August 29, 2022).



72. Defendants are knowledgeable about the '649 Patent and infringing acts alleged herein at least as of the date on which they are served with this Complaint.

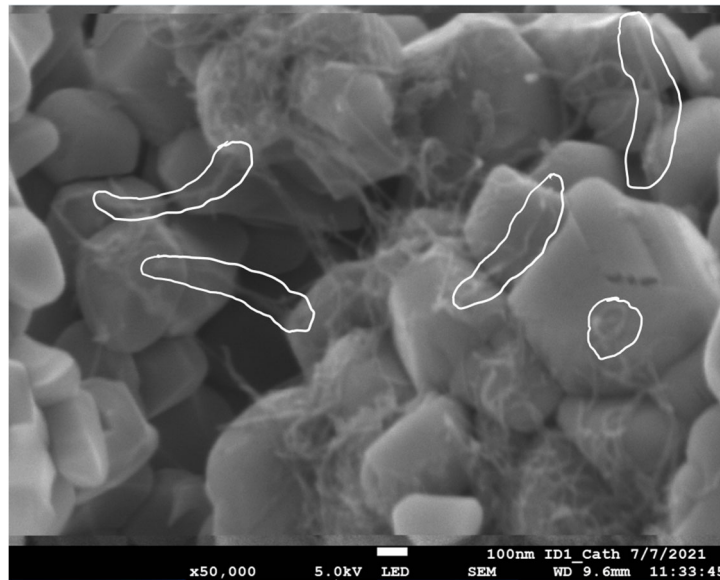
73. Defendants' infringing acts have been without the permission, consent, authorization, or license of Plaintiffs.

74. Claim 1 of the '649 Patent recites as follows:

1. A dispersion comprising a plurality of oxidized, discrete carbon nanotubes and at least one additive, wherein the oxidized, discrete carbon nanotubes have an aspect ratio of 25 to 500, are multiwall, and are present in the range of greater than zero to about 30% by weight based on the total weight of the dispersion.

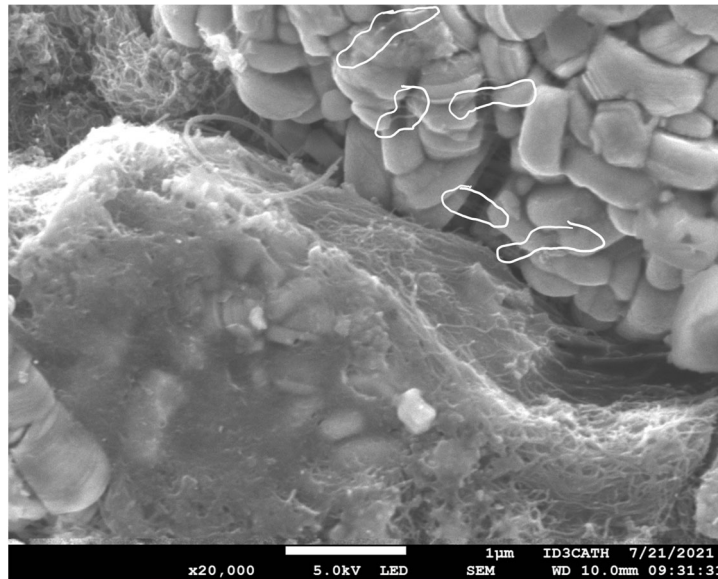
75. Defendants, by the Accused Products, infringe at least claim 1 of the '649 Patent.

76. The Accused Products contain a plurality of oxidized, discrete carbon nanotubes as reflected by the white circled regions in the below SEM image.



77. Each of the Accused Products have cathodes with an added component ("additive") that is in composition with the nanotubes, where the oxidized, discrete carbon nanotubes have an

aspect ratio of 25 to 500 and are multiwall, as shown by the white circled regions in the below SEM image.



78. The nanotubes present in the Accused Products are present in the range of greater than zero to about 30% by weight based on the total weight of the dispersion. On information and belief, the nanotubes in the Accused Products are present in an amount of less than about 10% of the cathode.

### **COUNT III: INFRINGEMENT OF THE '282 PATENT**

79. Plaintiffs incorporate by reference the preceding paragraphs.

80. On information and belief, LGE directly infringes, induces the infringement of, and contributes to the infringement of one or more claims of the '282 Patent, including at least claim 1, either literally or under the doctrine of equivalents.

81. On information and belief, LGE directly infringes the '282 Patent by, for example, assembling, or causing to have assembled, one or more of the Accused Products for use in third party electric vehicles.



82. On information and belief, LGE induces the infringement of the '282 Patent by third parties, including without limitation automobile or consumer electronics manufactures, by actively encouraging third parties to make, use, offer to sell, sell, or import into the United States, electric vehicles containing the infringing battery technologies. For example, LGE instructs, offers, or encourages third party automobile manufacturers to use one or more of the Accused Products in electric vehicles.

83. On information and belief, LGE contributes to the infringement of the '282 Patent by offering to sell or selling within the United States or importing into the United States infringing battery technologies for use in at least electric vehicles sold in the United States, knowing the infringing battery technologies to be especially-made components that have no substantial non-infringing use.

84. On information and belief, LG Chem at least induces the infringement of one or more claims of the '282 Patent, including at least claim 1, either literally or under the doctrine of equivalents.

85. On information and belief, LG Chem induces LGE to infringe the '282 Patent by instructing, offering, and encouraging LGE to use LG Chem's infringing battery technologies in LGE products.

86. On information and belief, LG Chem designs battery cells for the United States EV market and competes for business that it knows is directed to downstream products designated for the United States market. For example, LGES maintains a website specifically tailored for the United States and notes that it supplies automotive batteries for automobiles that are sold and offered for sale in the United States. *See* <https://www.lgensol.com/en/business-automotive-battery> (last accessed August 10, 2022).

87. On information and belief, LG Chem has directly infringed and/or contributed to the infringement of, and will continue to infringe and/or contribute to the infringement of, one or more claims of the '282 Patent at least based on its activities in Michigan. *See, e.g., LG Chem, Ltd. v. SK Innovation Co., Ltd.*, 1:19-cv-00776 (D. Del. April 29, 2019), Complaint, ¶ 29 (“LG CMI also has research and development, testing and engineering, manufacturing, sales and marketing, and business offices in Troy, Michigan, where it has invested many millions of dollars and employs hundreds of workers. Through its facilities in Michigan, LGC supplies millions of battery cells each year to automotive manufacturers including General Motors and Chrysler.”); *LG Energy Solution, Ltd. et al. v. SK Innovation Co., Ltd. et al.*, 19-cv-1805-CFC, D.I. 12-1 (D. Del. Jan. 5, 2021) (“LGES has extensive involvement in the U.S. market with its innovative battery technology. In fact, LGES and its subsidiary LG Energy Solution Michigan [,] Inc. [ ] supply, through plants in Michigan[,], millions of battery cells to U.S. companies like General Motors and Chrysler. For example, LGESMI has invested hundreds of millions of dollars in a facility in Holland, Michigan, which employs hundreds of workers making lithium-ion batteries for electric vehicles (EVs).”).

88. Further, on information and belief, LG Chem contributes to the infringement of the '961 Patent by offering to sell or selling within the United States or importing into the United States infringing battery technologies for use in at least electric vehicles or other consumer electronics sold in the United States, knowing the infringing battery technologies to be especially-made components that have no substantial non-infringing use. *See, e.g.,* <https://www.lgchem.com/company/company-information/global-network/overseas-corporation/america> (last accessed August 29, 2022).

89. Defendants are knowledgeable about the '282 Patent and infringing acts alleged herein at least as of the date on which they are served with this Complaint.

90. Defendants' infringing acts have been without the permission, consent, authorization, or license of Plaintiffs.

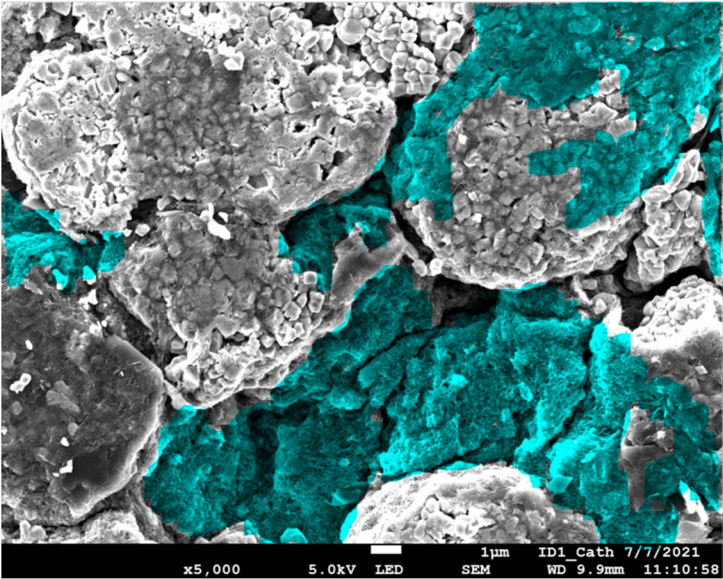
91. Claim 1 of the '282 Patent recites as follows:

1. A composition for use as a binder material, an electrolyte material or a separator film material of an energy storage or collection device, comprising:  
a plurality of discrete carbon nanotube fibers, said fibers having an aspect ratio of from about 10 to about 500, and wherein at least a portion of the discrete carbon nanotube fibers are open ended and  
wherein 40% to 90% by number of the discrete carbon nanotubes have an aspect ratio of 30-70 and wherein from 1% to 30% by number of discrete carbon nanotubes have an average aspect ratio 80-140.

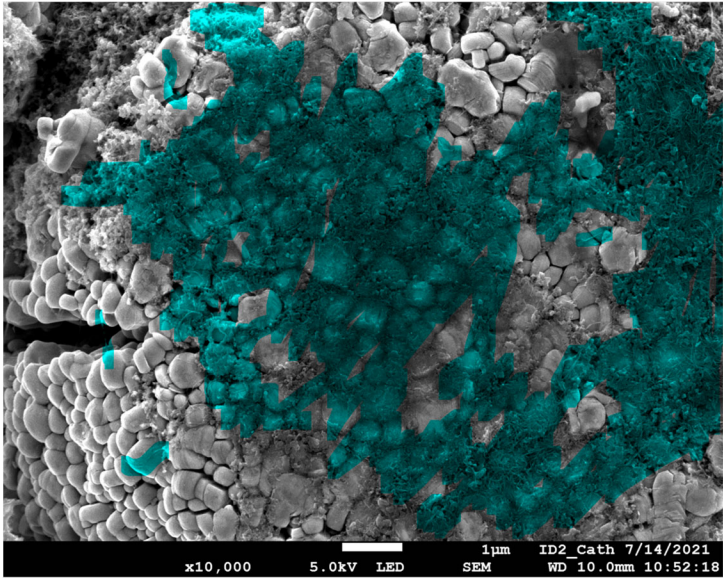
92. Defendants, by the Accused Products, infringe at least claim 1 of the '282 Patent.

93. The Accused Products have pluralities of carbon nanotube materials covering the surfaces of the active materials and binding the particles together in crevices as shown by the blue highlighting in the below SEM images. These nanotubes are being used as a binder, or part of a binder system.

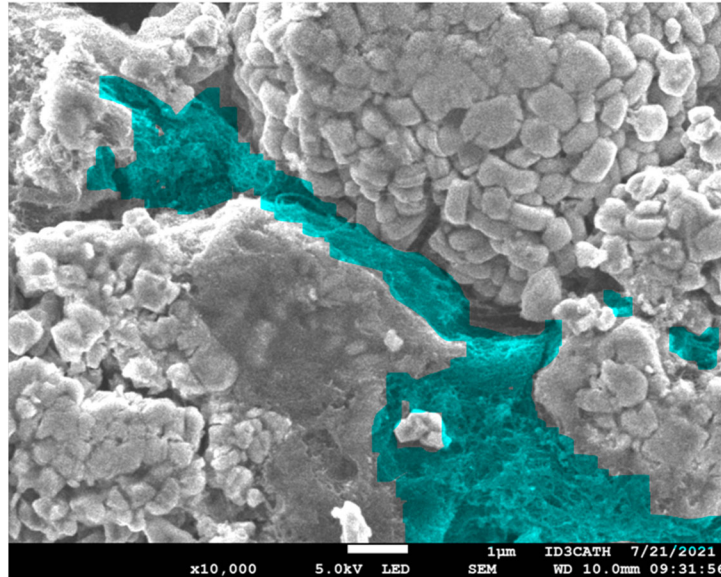
**LG HG2**



**LG HG6**



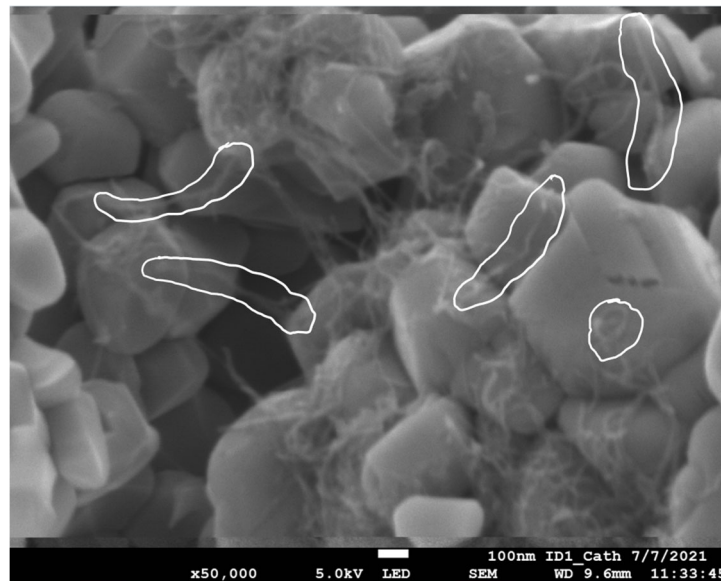
### LG MJ1



94. The aforementioned composition is of an energy storage or collection device, which the Accused Products are as previously set forth.

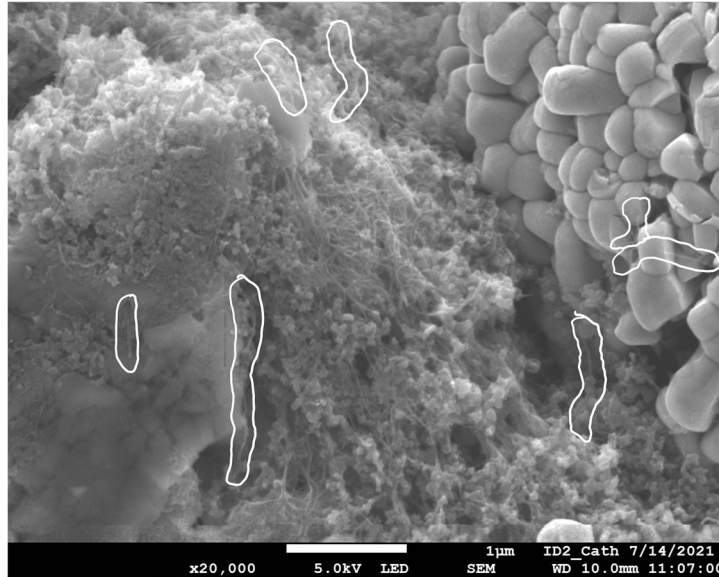
95. The Accused Products have a plurality of discrete carbon nanotube fibers as shown by the white circled regions in the below SEM images.

### LG HG2

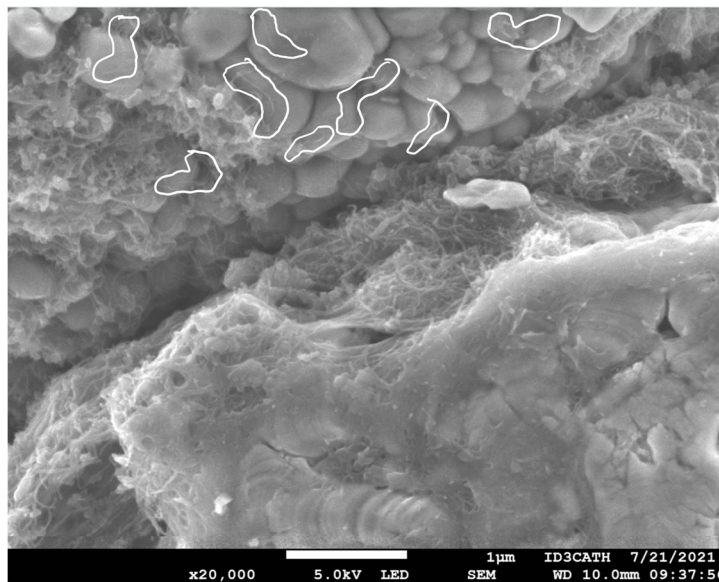




**LG HG6**



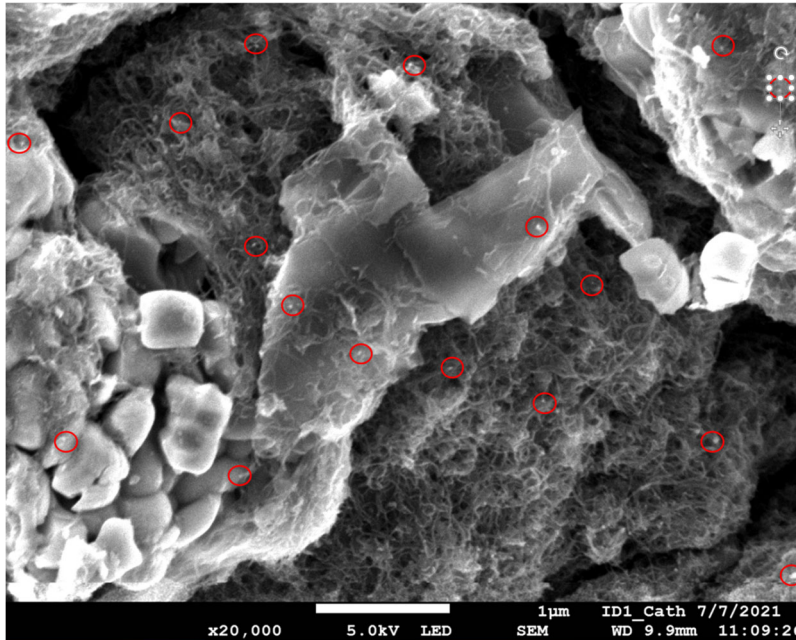
**LG MJ1**



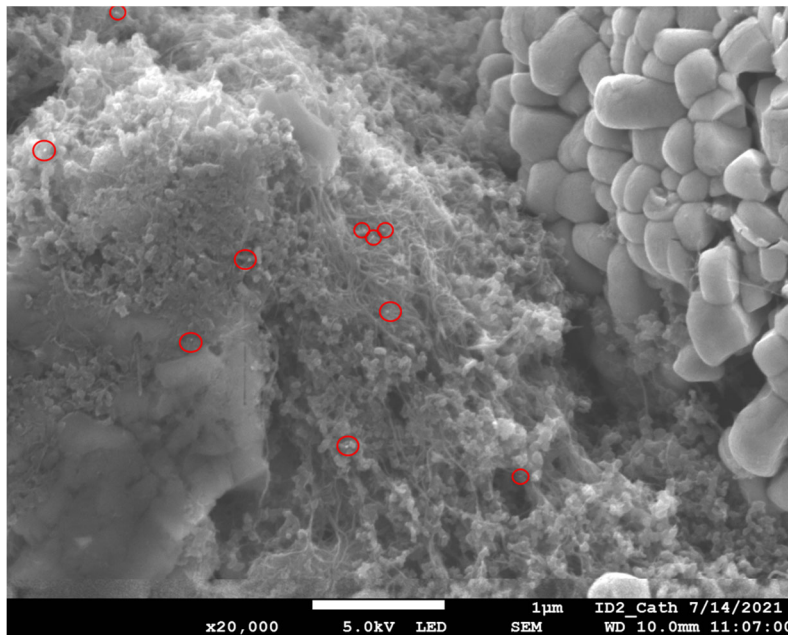
96. The aforementioned carbon nanotube fibers have an aspect ratio of from about 10 to about 500 based on SEM-based dimensional measurements showing nanotube lengths of approximately 500-2000 nm and diameters of approximately 10-20 nm, thus fitting within the claim range (aspect ratio = length divided by diameter).

97. A least a portion of the discrete carbon nanotube fibers in the Accused Products are open ended as shown by the red circled regions in the below SEM images.

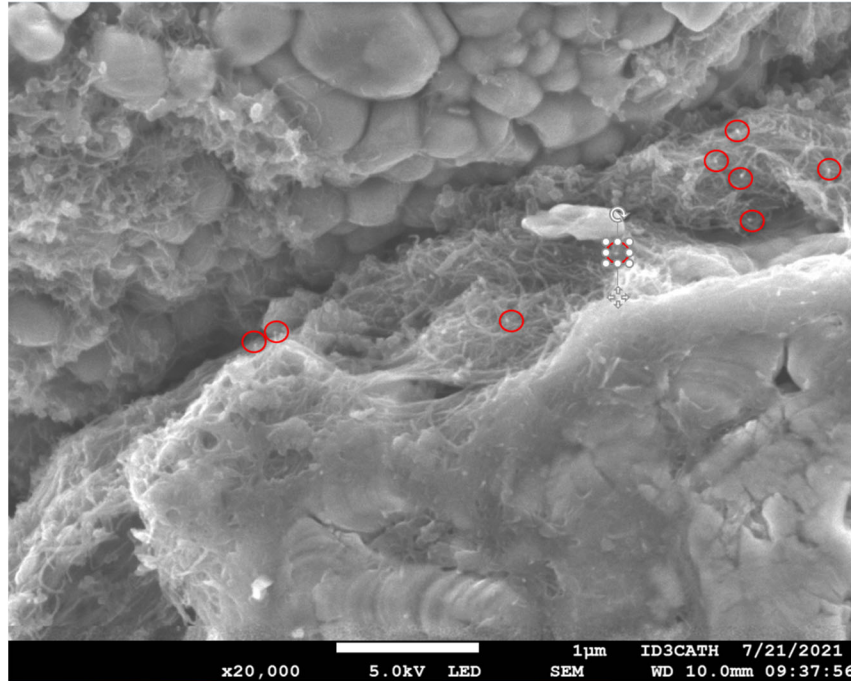
**LG HG2**



**LG HG6**



### LG MJ1



98. In the Accused Products, 40% to 90% by number of the discrete carbon nanotubes have an aspect ratio of 30-70 based on SEM-based dimensional measurements of the detangled carbon nanotubes.

99. In the Accused Products, 1% to 30% by number of discrete carbon nanotubes have an average aspect ratio 80-140 based on SEM-based dimensional measurements of the detangled carbon nanotubes.

### PRAYER FOR RELIEF

100. Plaintiffs incorporate by reference the preceding paragraphs.

101. As a result of Defendants' unlawful activities, Plaintiffs have suffered and will continue to suffer irreparable harm for which there is no adequate remedy at law. Defendants' continued infringement of the Asserted Patents causes harm to Plaintiffs in the form of price erosion, loss of goodwill, damage to reputation, loss of business opportunities, inadequacy of



money damages, and direct and indirect competition. Monetary damages are insufficient to compensate Plaintiffs for these harms. Accordingly, Plaintiffs are entitled to preliminary and permanent injunctive relief.

102. Under the law, Plaintiffs are also entitled to compensation for Defendants' infringement described above. However, the full compensation owed to Plaintiffs cannot be ascertained except through discovery and special accounting. To the fullest extent permitted by law, Plaintiffs seek recovery of at least reasonable royalties. Plaintiffs further seek any other damages to which Plaintiffs are entitled under law or in equity.

103. Plaintiffs are entitled to recover reasonable attorneys' fees under applicable law, including 35 U.S.C. § 285 given the exceptional nature of this case.

104. WHEREFORE, Plaintiffs pray that the Court enter the following relief under any applicable law, rule, or inherent power of the Court:

- a. judgment that Defendants infringe the Asserted Patents;
- b. judgment that Defendants' infringement of the Asserted Patents has been willful;
- c. order of an accounting of damages;
- d. damages in an amount adequate to compensate Plaintiffs for Defendants' infringement of the Asserted Patents, but in no event less than a reasonable royalty under 35 U.S.C. § 284, including supplemental damages for any continuing post-verdict infringement up until entry of the final judgment;
- e. enhanced damages under 35 U.S.C. § 284;
- f. pre-judgment and post-judgment interest to Plaintiffs to the full extent allowed under the law;
- g. Plaintiffs' costs;

- h. If permanent injunctive relief is not granted, a compulsory future royalty payable on each infringing product made, used, or sold by Defendants following trial or that is not captured in the damages awarded to Plaintiffs;
- i. order finding that this is an exceptional case and awarding Plaintiffs their reasonable attorneys' fees under 35 U.S.C. § 285;
- j. entry of an order that preliminarily and permanently enjoins the Defendants and their officers, employees, agents, servants, attorneys, instrumentalities, and/or those in privity with them, from continuing to infringe the Asserted Patents and for all further and proper injunctive relief under 35 U.S.C. § 283; and
- k. such other relief as the Court may deem appropriate and just under the circumstances.

### **DEMAND FOR A JURY TRIAL**

In accordance with Federal Rule of Civil Procedure 38, Plaintiffs hereby respectfully demand a trial by jury of all issues and claims so triable.

Dated: August 29, 2022

Respectfully submitted,

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