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

MOLECULAR REBAR DESIGN, LLC, AND BLACK DIAMOND STRUCTURES, LLC, Plaintiffs, v. LG ENERGY SOLUTION, LTD., Defendant.	Case No. 2:24-cv-00107-JRG (Lead Case) **JURY TRIAL DEMANDED**
MOLECULAR REBAR DESIGN, LLC, AND BLACK DIAMOND STRUCTURES, LLC, Plaintiffs, v. SAMSUNG ELECTRONICS CO., LTD, AND SAMSUNG ELECTRONICS AMERICA, INC., Defendants.	Case No. 2:24-cv-00108-JRG (Member Case) **JURY TRIAL DEMANDED**

PLAINTIFFS' DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS PURSUANT TO LOCAL PATENT RULES 3-1 AND 3-2

Pursuant to Local Patent Rules 3-1 and 3-2, Plaintiffs Molecular Rebar Design, LLC and Black Diamond Structures, LLC (collectively, "MRD"), hereby serve their Disclosure of Asserted Claims and Infringement Contentions and accompanying documents on Defendant LG Energy Solution, Ltd., ("LG").

MRD makes these contentions based on the information reasonably available to it at this time and reserves the right to supplement and/or amend these contentions.

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I. Patent Rule 3-1(a) Disclosures

Based upon information presently available, MRD asserts that Defendant directly and indirectly infringes the claims identified in the claim charts that accompany these disclosures. MRD makes this disclosure based on information reasonably available to it at this time and reserves its right to supplement and/or amend its disclosure of Asserted Claims.

II. Patent Rule 3-1(b) Disclosures

In Exhibit 1 included herein, MRD identifies, for each asserted claim, each accused infringing apparatus, product, device, process, method, act, or other instrumentality of LG of which MRD is aware. MRD makes this disclosure based on information reasonably available to it at this time and reserves its right to supplement and/or amend its disclosure of the Accused Instrumentalities, including to identify additional Accused Instrumentalities.

III. Patent Rule 3-1(c) Disclosures

MRD's detailed infringement assertions are contained in the claim charts that accompany these disclosures. MRD makes this disclosure based on information reasonably available to it at this time and reserves its right to supplement and/or amend its disclosure.

IV. Patent Rule 3-1(d) Disclosures

MRD asserts that Defendant literally infringes each asserted claim. To the extent that any particular element is shown not to be met literally, MRD contends that Defendant infringes under the Doctrine of Equivalents as there would be no substantial difference between the elements of the asserted claims and the corresponding functionality in the accused instrumentality, *i.e.*, the corresponding functionality in the Accused Products does substantially the same thing, in substantially the same way, to achieve substantially the same result(s) as the claimed elements.

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MRD makes this disclosure based on information reasonably available to it at this time and reserves its right to supplement and/or amend its disclosure.

V. Patent Rule 3-1(e) Disclosures

The Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than September 17, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than September 27, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than October 5, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than October 7, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than October 8, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than October 19, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than October 21, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than November 3, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than November 16, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 are entitled to a priority date no later than February 7, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than February 10, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than February 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than March 2, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than May 1, 2009. In the alternative, the Asserted Claims of U.S.

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Patent No. 8,808,909 B2 are entitled to a priority date of no later than August 24, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than September 4, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than October 26, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than December 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than March 15, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than May 12, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than June 9, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than July 25, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than November 7, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than December 17, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than March 2, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than March 11, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than April 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than June 23, 2011, including through the filing of Provisional Application No. 61/500560. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than November 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than March 15, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909

B2 are entitled to a priority date of no later than March 26, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date of no later than May 30, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 8,808,909 B2 are entitled to a priority date no later than June 21, 2012, including through the filing of Application No. 14/128,392.

The Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than September 17, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than September 27, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than October 5, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than October 7, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than October 8, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than October 19, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than October 21, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than November 3, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than November 16, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than February 7, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than February 10, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than February 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no

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later than March 2, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than May 1, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than August 24, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than September 4, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than October 26, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than December 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than March 15, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than May 12, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than June 9, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than July 25, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than November 7, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than December 17, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than March 2, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than March 11, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than April 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than November 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than March 15, 2012. In the alternative, the Asserted Claims of U.S.

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Patent No. 10,608,282 B2 are entitled to a priority date of no later than March 26, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date of no later than May 30, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than June 21, 2012, including through the filing of Provisional Application No. 61/663,513. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than June 22, 2012, including through the filing of Provisional Application No. 61/662,393. In the alternative, the Asserted Claims of U.S. Patent No. 10,608,282 B2 are entitled to a priority date no later than June 21, 2013, including through the filing of Application No. 14/390,902.

The Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than September 17, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than September 27, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than October 5, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than October 7, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than October 8, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than October 19, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than October 21, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than November 3, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 are entitled to a priority date no later than November 16, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than February 7, 2009. In the

alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than February 10, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than February 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than March 2, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than May 1, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than August 24, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than September 4, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than October 26, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than December 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than March 15, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than May 12, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than June 9, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than July 25, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than November 7, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than December 14, 2010, including through the filing of Provisional Application No. 61/423,033. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than December 17, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than March 2, 2011. In the

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alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than March 11, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than April 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than November 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than December 12, 2011, including through the filing of Patent Application No. 13/993,206. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than March 15, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than March 26, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date of no later than May 30, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than October 27, 2015, including through the filing of Patent Application No. 14/924,246. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than May 27, 2016, including through the filing of Patent Application No. 15/166,931. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than August 1, 2016, including through the filing of Patent Application No. 15/166,931. In the alternative, the Asserted Claims of U.S. Patent No. 9,636,649 B2 are entitled to a priority date no later than October 7, 2016, including through the filing of Patent Application No. 15/288/553.

The Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than September 17, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than September 27, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than

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October 5, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than October 7, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than October 8, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than October 19, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than October 21, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than November 3, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than November 16, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than February 7, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than February 10, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than February 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than March 2, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than May 1, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than August 24, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than September 4, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than October 26, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than December 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than March 15, 2010. In the alternative, the Asserted Claims

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of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than May 12, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than June 9, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than July 25, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than November 7, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than December 17, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than March 2, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than March 11, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than April 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than June 23, 2011, including through the filing of Provisional Application No. 61/500560. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than November 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than March 15, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than March 26, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date of no later than May 30, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 8,968,924 B2 are entitled to a priority date no later than June 21, 2012, including through the filing of Application No. 14/128,392.

The Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than September 17, 2008. In the alternative, the Asserted Claims of U.S. Patent No.

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10,153,483 B2 are entitled to a priority date of no later than September 27, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than October 5, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than October 7, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than October 8, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than October 19, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than October 21, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than November 3, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than November 16, 2008. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than February 7, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than February 10, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than February 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than March 2, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than May 1, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than August 24, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than September 4, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than October 26, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later

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than December 12, 2009. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than March 15, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than May 12, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than June 9, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than July 25, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than November 7, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than December 17, 2010. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than March 2, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than March 11, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than April 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than June 23, 2011, including through the filing of Provisional Application No. 61/500,560. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than November 10, 2011. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than March 15, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than March 26, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date of no later than May 30, 2012. In the alternative, the Asserted Claims of U.S. Patent No. 10,153,483 B2 are entitled to a priority date no later than June 21, 2012, including through the filing of Application No. 13/529,797.

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VI. Patent Rule 3-1(f) Disclosures

With respect to the ’649 Patent, MRD identifies the following products, devices, processes, methods, acts, or other instrumentalities that incorporate or reflect Claims 1, 2, and 11 of that Patent: Pb1xx0 Series (Auto); Pb2xx0 Series (Deep Cycle); Pb3xx0 Series (Storage); Pb4xx0 Series (Traction); PbAC (AntiCorrosion); PbLite (Process Aid); Li2151; and Li3281. With respect to the ’282 Patent, MRD identifies the following products, devices, processes, methods, acts, or other instrumentalities that incorporate or reflect Claims, 1, 5, 6, 7, and 8 of that Patent: Pb1xx0 Series (Auto); Pb2xx0 Series (Deep Cycle); Pb3xx0 Series (Storage); Pb4xx0 Series (Traction); PbAC (AntiCorrosion); PbLite (Process Aid); Li2151; and Li3281. MRD makes this disclosure based on information reasonably available to it at this time and reserve its right to supplement and/or amend its disclosure.

VII. Patent Rule 3-2(a) Documents

MRD presently is not relying on documents evidencing any discussion with, disclosure to, or other manner of providing to a third party, or sale of or offer to sell, the claimed invention prior to the date of application for the patent in suit. MRD makes this disclosure based on information reasonably available to it at this time and reserve its right to supplement and/or amend its disclosure.

VIII. Patent Rule 3-2(b) Documents

Non-privileged documents evidencing the conception, reduction to practice, design, and development of each claimed invention and their respective families, which were created on or before the date of application for the patent in suit or the priority date identified pursuant to Patent Rule 3-1(e) are being concurrently produced bearing Bates numbers MRD-0000003083–MRD-0000003698.

MRD makes this disclosure based on information reasonably available to it at this time and reserve its right to supplement and/or amend its disclosure.

IX. Patent Rule 3-2(c) Documents

A copy of the file history and issued patent for each of the Asserted Patents is being concurrently produced bearing Bates numbers MRD-0000000001–MRD-0000003082.

Date: May 15, 2024

Respectfully submitted,
/s/ Andres Healy

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Attorneys for Plaintiffs MRD and BDS

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Exhibit 1

This chart identifies for each asserted claim, each accused apparatus, product, device, process, method, act, or other instrumentality ("Accused Product") of LG Energy Solution, Ltd, ("LG") of which Molecular Rebar Design, LLC and Black Diamond Structures, LLC (collectively, "MRD") is aware.

MRD notes that the below chart contains an exemplary, non-limiting identification of each Accused Product. MRD makes these contentions based on the information reasonably available to it at this time and before LG has provided any technical materials or source code. MRD reserves the right to modify, supplement, and/or amend these contentions as additional evidence and information become available, including in light of discovery, invalidity, prior art, claim construction, or any information provided.

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U.S. Patent No. 8,808,909

Accused Product
• HG2 battery • HG6 battery • MJ1 18650INR battery • E78 battery • Gram Laptop '18 battery • Gram Laptop '22 battery • G8 Cell Phone '19 battery • Any variants, precursor, or subsequent models of each of the above Accused Products; • Any fast-charging batteries using, including, or incorporating carbon nanotubes ("CNTs"); • Any high-rate discharge batteries using, including, or incorporating CNTs; • Any e-vehicle, computer, electronic wearable, cellular device, home battery backup, residential energy storage, or similar or related product, instrumentality, device, or technology using, including, or incorporating CNTs.

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U.S. Patent No. 8,968,924

Accused Product
• HG2 battery • HG6 battery • MJ1 18650INR battery • E78 battery • Gram Laptop '18 battery • Gram Laptop '22 battery • G8 Cell Phone '19 battery • Any variants, precursor, or subsequent models of each of the above Accused Products; • Any fast-charging batteries using, including, or incorporating CNTs; • Any high-rate discharge batteries using, including, or incorporating CNTs; • Any e-vehicle, computer, electronic wearable, cellular device, home battery backup, residential energy storage, or similar or related product, instrumentality, device, or technology using, including, or incorporating CNTs.

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U.S. Patent No. 9,636,649

Accused Product
• HG2 battery • HG6 battery • MJ1 18650INR battery • E78 battery • Gram Laptop '18 battery • Gram Laptop '22 battery • G8 Cell Phone '19 battery • Any variants, precursor, or subsequent models of each of the above Accused Products; • Any fast-charging batteries using, including, or incorporating CNTs; • Any high-rate discharge batteries using, including, or incorporating CNTs; • Any e-vehicle, computer, electronic wearable, cellular device, home battery backup, residential energy storage, or similar or related product, instrumentality, device, or technology using, including, or incorporating CNTs.

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U.S. Patent No. 10,153,483

Accused Product
• HG2 battery • HG6 battery • MJ1 18650INR battery • E78 battery • Gram Laptop '18 battery • Gram Laptop '22 battery • G8 Cell Phone '19 battery • Any variants, precursor, or subsequent models of each of the above Accused Products; • Any fast-charging batteries using, including, or incorporating CNTs; • Any high-rate discharge batteries using, including, or incorporating CNTs; • Any e-vehicle, computer, electronic wearable, cellular device, home battery backup, residential energy storage, or similar or related product, instrumentality, device, or technology using, including, or incorporating CNTs.

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U.S. Patent No. 10,608,282

Accused Product
• HG2 battery • HG6 battery • MJ1 18650INR battery • E78 battery • Gram Laptop '18 battery • Gram Laptop '22 battery • G8 Cell Phone '19 battery • Any variants, precursor, or subsequent models of each of the above Accused Products; • Any fast-charging batteries using, including, or incorporating CNTs; • Any high-rate discharge batteries using, including, or incorporating CNTs; • Any e-vehicle, computer, electronic wearable, cellular device, home battery backup, residential energy storage, or similar or related product, instrumentality, device, or technology using, including, or incorporating CNTs.

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This chart shows on an element-by-element basis how Molecular Rebar Design, LLC and Black Diamond Structures, LLC (collectively, "MRD") contend that LG Energy Solution, Ltd. ("LG") infringes Claims 1, 2, 11, 17, 18, and 19 of U.S. Patent No. 9,636,649 (the "'649 Patent") through the making, using, offering for sale, sale, and/or importation of the products identified on Exhibit 1, as well as any other products that LG makes, uses, offers for sale, sells, and/or imports that operate in the manner set forth below, including any subsequent versions or releases of such products (collectively, the "'649 Accused Products").

LG also indirectly infringes each asserted claim in violation of 35 U.S.C. §271(b) by taking active steps to encourage and facilitate direct infringement by third parties in the United States, including customers, partners, and service providers, through the dissemination of the '649 Accused Products and the creation and dissemination of marketing and promotional materials, supporting materials, instructions, product manuals, and/or technical information relating to such products with knowledge and the specific intent that its efforts would result in the direct infringement of the '649 Patent. For example, LG announced in 2023 that it expected to triple energy storage "division's global sales in five years, fueled by the remarkable expansion of the U.S. market." LG Energy Solution, *LG Energy Solution Announces U.S. Market Strategies for ESS*, https://news.lgensol.com/companynews/press-releases/2108 (last visited February 15, 2024). It also announced in 2023 that it was "set to launch a new residential energy storage system in the U.S. in November." LG, *LG Energy Solution enblock S to Make U.S. Debut in November*, https://news.lgensol.com/companynews/press-releases/2210 (last visited February 15, 2024). It also announced in 2023 that it had "signed a supply agreement for lithium-ion battery modules to be used in Toyota battery electric vehicles (BEVs) that will be assembled in the United States." LG, *LG Energy Solution and Toyota Sign Long-term Battery Supply Agreement to Power Electric Vehicles in the U.S.*, https://news.lgensol.com/company-news/press-releases/2177 (last visited February 15, 2024). LG thus induced, and continues to actively induce, the direct infringement of the '649 Patent by service providers and other customers by distributing the '649 Accused Products and by, among other things, creating and distributing various programs that train customers to use them in an infringing manner.

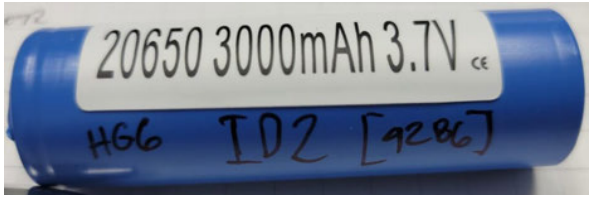
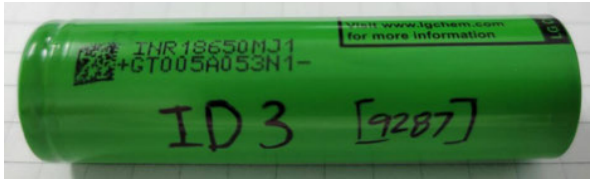
MRD notes that the below chart contains an exemplary, non-limiting description of how each '649 Accused Product infringes the '649 Patent. MRD makes these contentions based on the information reasonably available to it at this time and before LG has provided any technical materials or source code. MRD reserves the right to modify, supplement, and/or amend these contentions as additional evidence and information become available, including in light of discovery, invalidity, prior art, claim construction, or any information provided.

As demonstrated below, MRD contends that each element of each asserted claim is literally infringed by the '649 Accused Products. MRD further contends that, to the extent that any particular element is not met literally by the '649 Accused Products, each '649 Accused Product infringes under the doctrine of equivalents for the reasons set forth below because there would be no substantial difference between the elements of the asserted claims and the corresponding functionality in the accused instrumentality, i.e., the corresponding

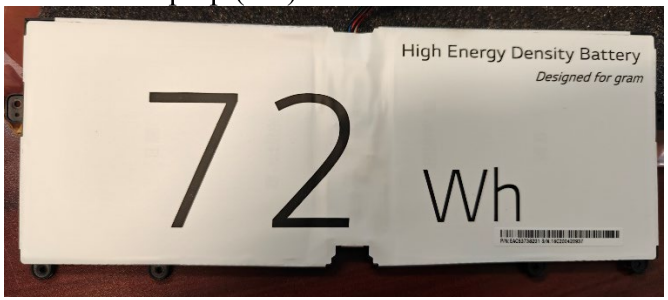
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functionality in the ’649 Accused Products does substantially the same thing, in substantially the same way, to achieve substantially the same result(s) as the claimed elements.

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	Claim	Contention
1	A dispersion comprising:	To the extent that the preamble is limiting, it is met by the '649 Accused Products, each of which comprises "[a] dispersion." Specifically, each of the '649 Accused Products is a battery that comprises lithium-ion cells and/or pouches that include an electrode. Such electrode comprises a dispersion and/or was manufactured using a slurry that comprises a dispersion. For example, LG has stated that "the two most widely used mixtures are NCM (**Li**, O, Ni, Co, Mn) and NCA (**Li**, Ni, Co, Al, O)." https://blog.lgchem.com/en/2023/05/31_cathode_material/. Further, LG also utilizes a mixture comprised of LCO (**Li**, Co, O) and LFP (**Li**, Iron, Phosphate). Examples of such batteries are depicted below. LG HG2:  LG HG6:  LG MJ1: 

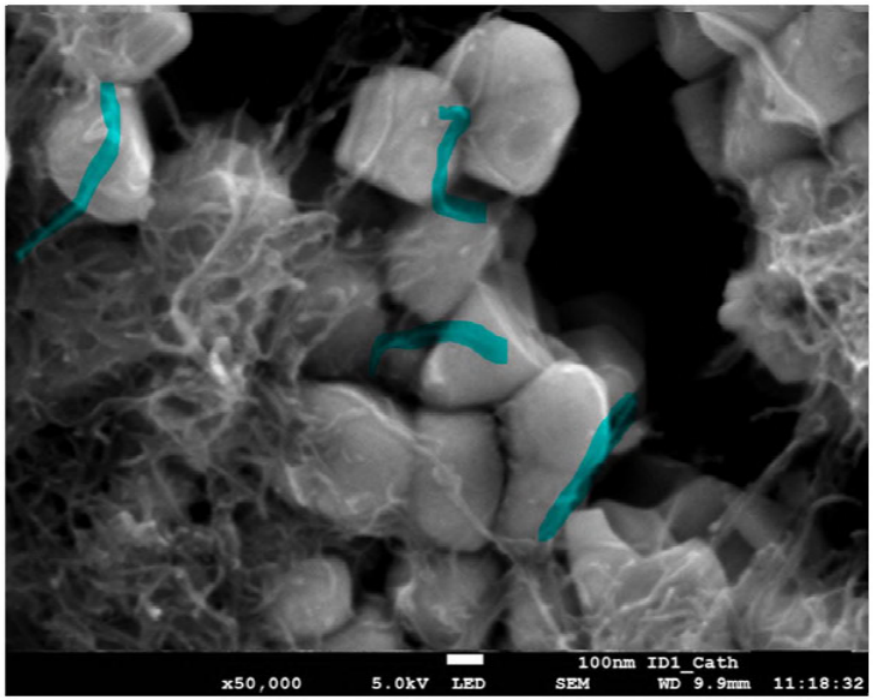
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Claim		Contention
		LG Gram Laptop (’22):  LG E78 eVehicle/ESS Pouch:  LG Gram Laptop (’19): 

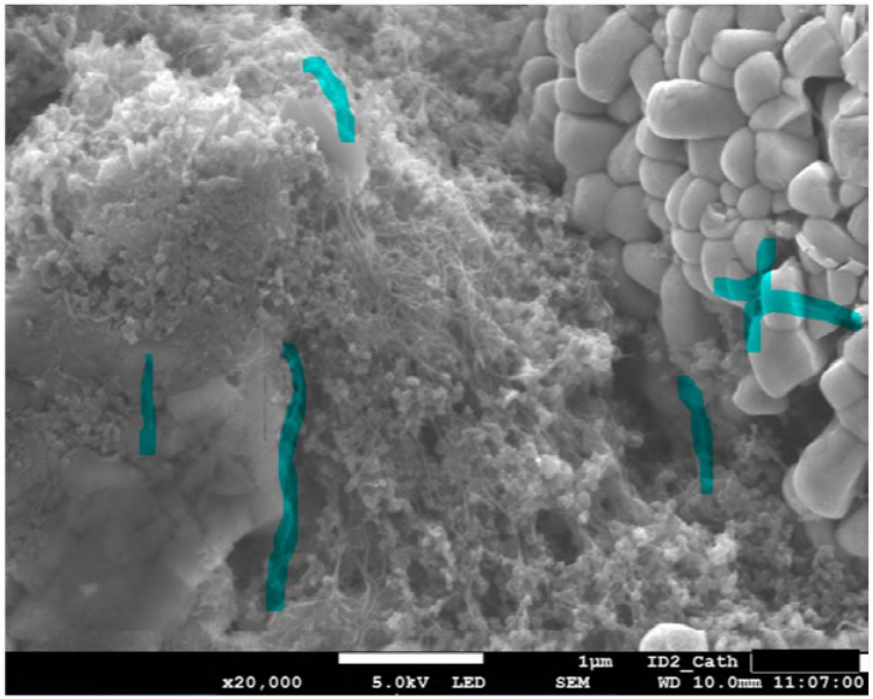
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Claim		Contention
		LG G8 Cellphone Battery (’19): 
	a plurality of oxidized, discrete carbon nanotubes,	This element is met by the ’649 Accused Products, each of which comprises “a plurality of oxidized, discrete carbon nanotubes.” Specifically, each of the ’649 Accused Products comprises two or more oxidized, discrete carbon nanotubes.

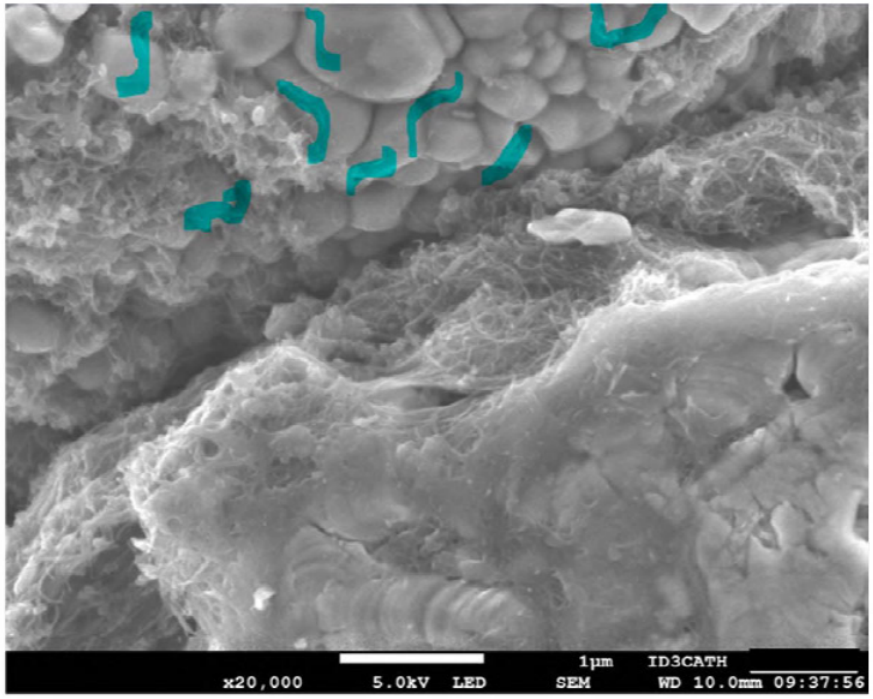
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		This is demonstrated by the below images from certain representative '649 Accused Products, which reflects that HG2 comprises discrete carbon nanotubes (highlighted in blue). 

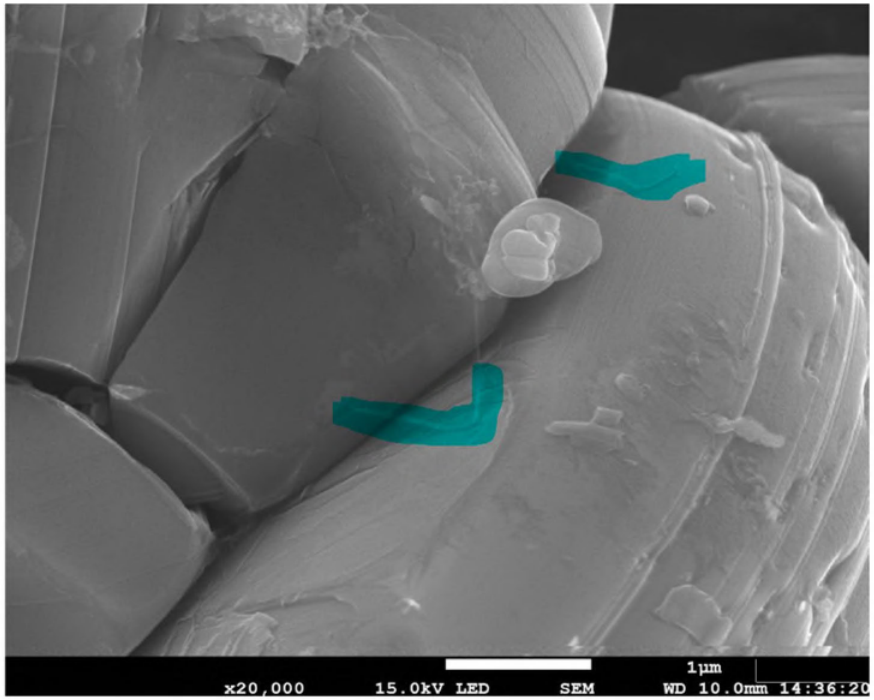
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		As another example, as depicted below, HG6 comprises discrete carbon nanotubes (highlighted in blue). 

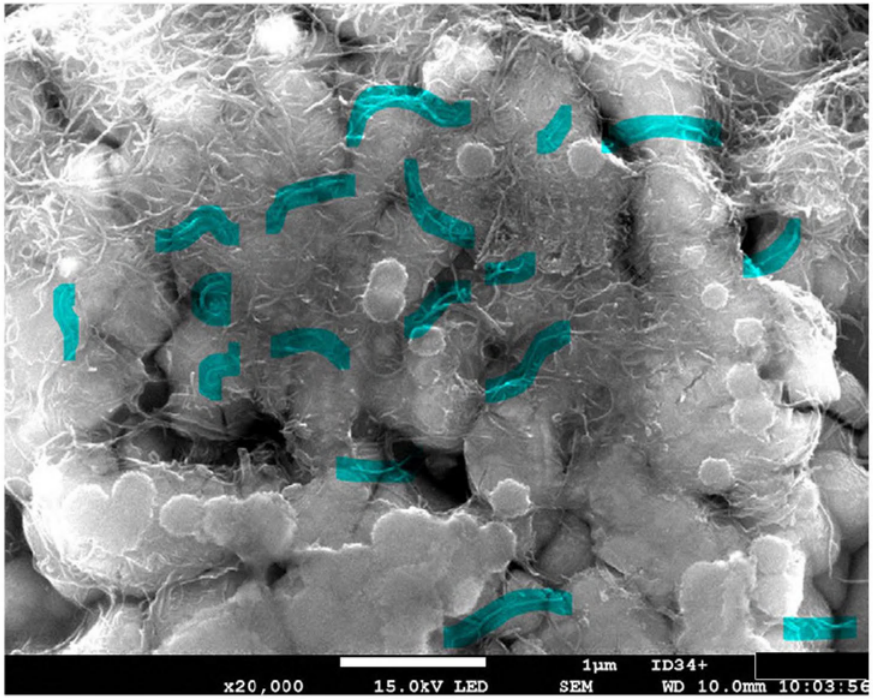
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	Claim	Contention
		As another example, as depicted below, MJ1 comprises discrete carbon nanotubes (highlighted in blue). 

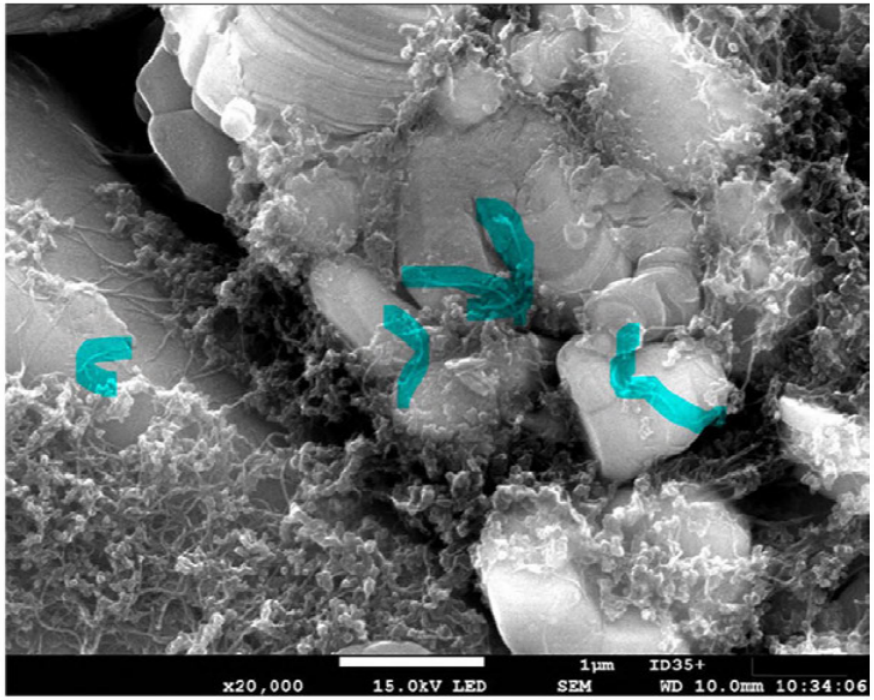
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Claim		Contention
		As another example, as depicted below, the LG Gram Battery ('22) comprises discrete carbon nanotubes (highlighted in blue). 

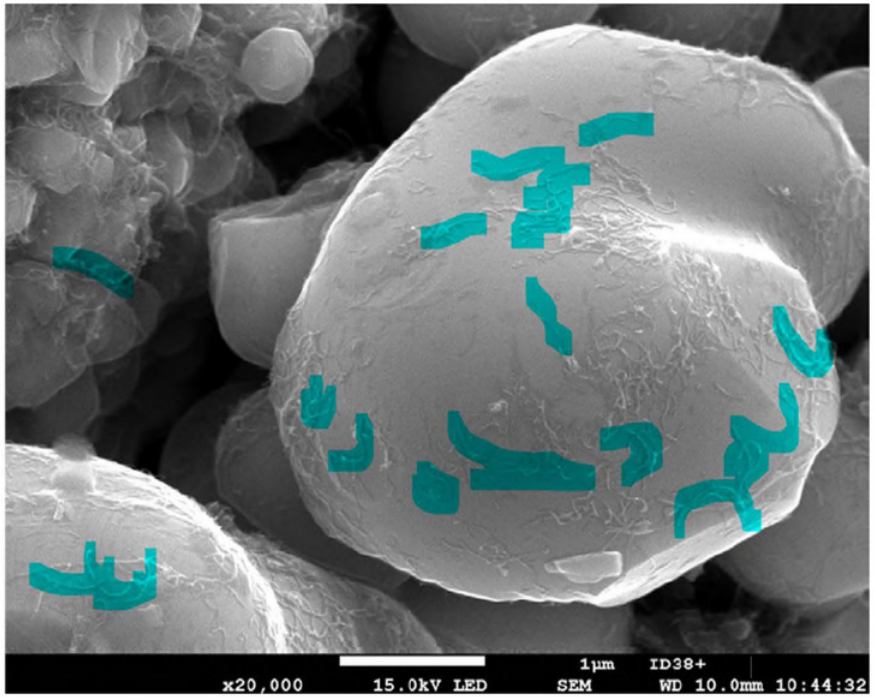
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Claim		Contention
		As another example, as depicted below, E78 comprises discrete carbon nanotubes (highlighted in blue). 

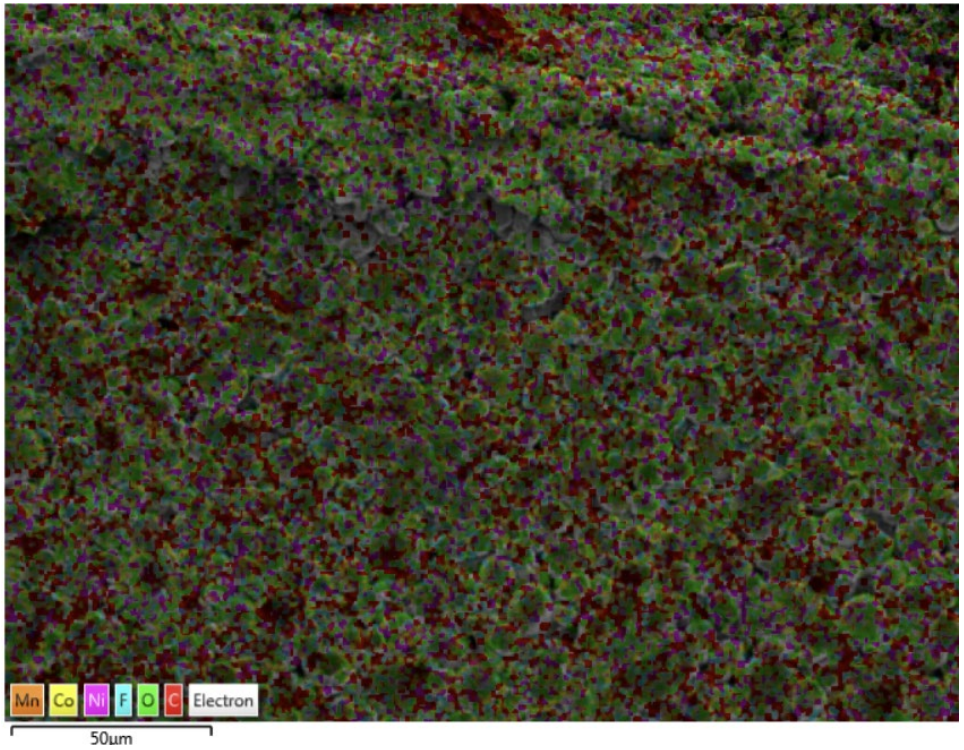
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Claim		Contention
		As another example, as depicted below, the LG Gram Laptop ('19) comprises discrete carbon nanotubes (highlighted in blue). 

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Claim		Contention
		As another example, as depicted below, LG G8 Cellphone Battery ('19) comprises discrete carbon nanotubes (highlighted in blue).  Further each of the '649 Accused Products comprises carbon nanotubes that are oxidized. This is demonstrated in part by the below images from certain representative '649 Accused Products, which reflects the presence of oxygen in each sample.

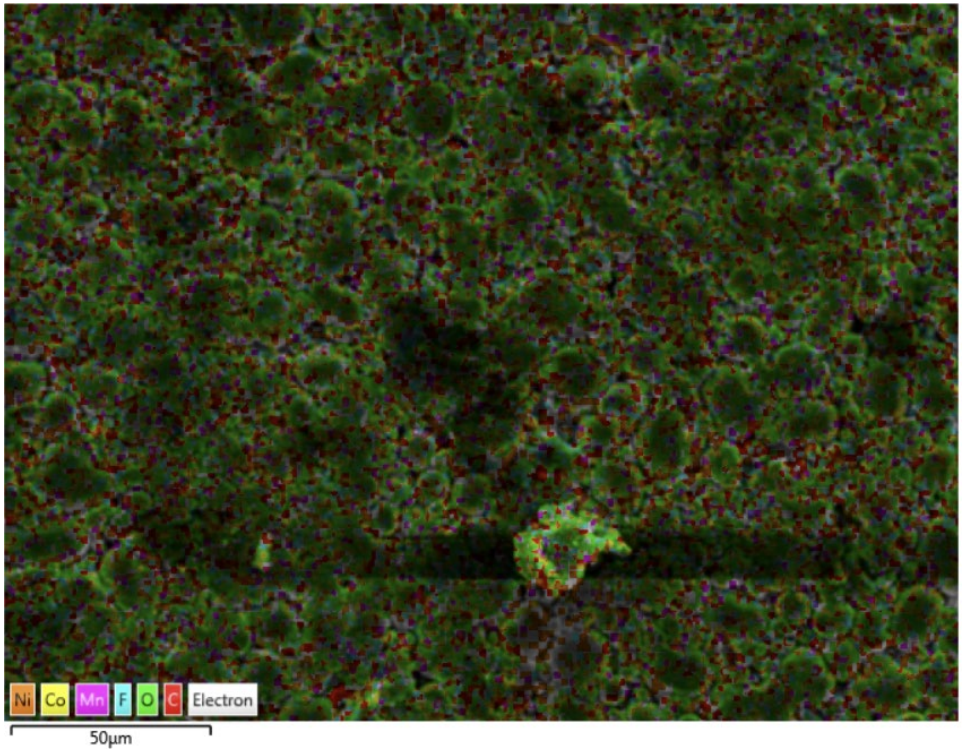
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		HG2 

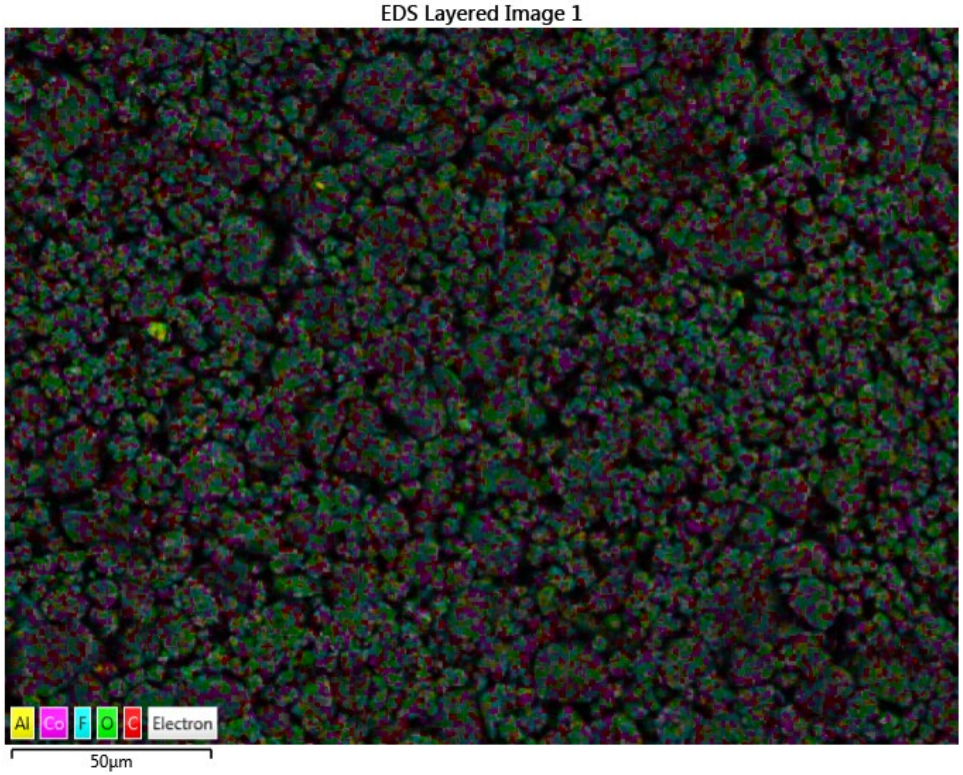
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		HG6 

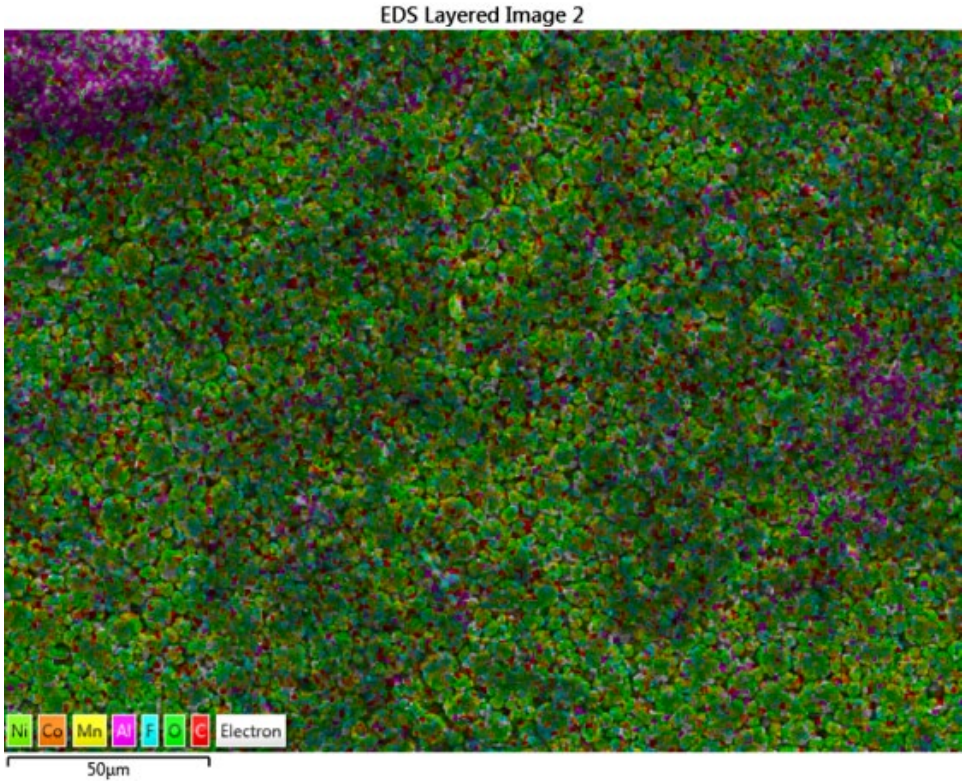
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	Claim	Contention
		MJ1 

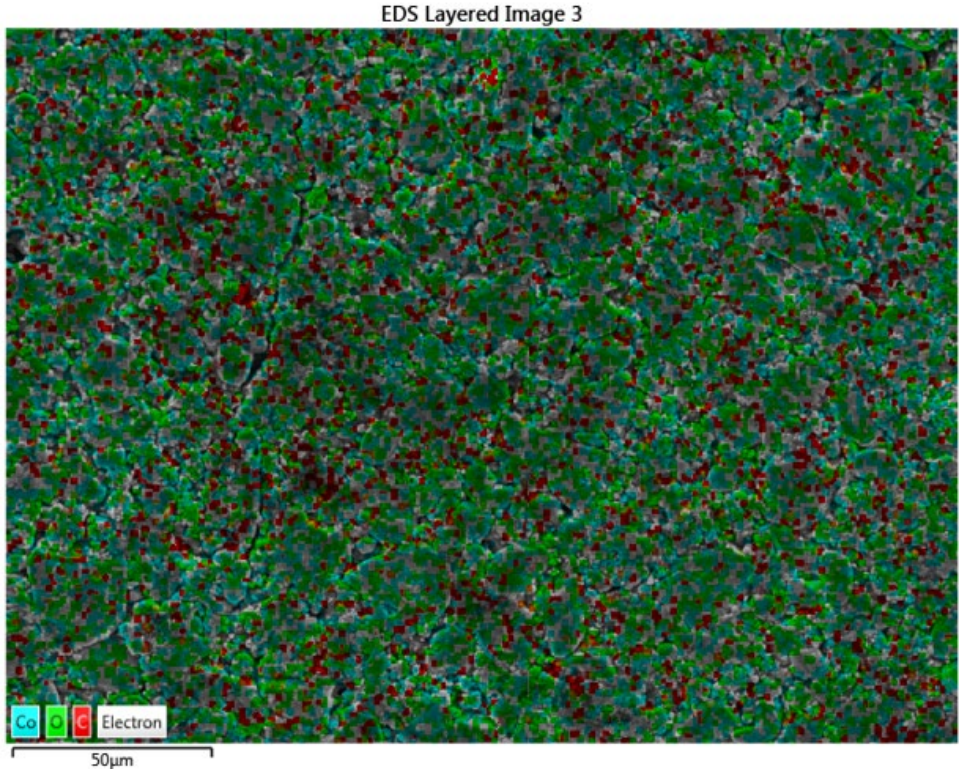
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Claim		Contention
		LG Gram Laptop (’22): 

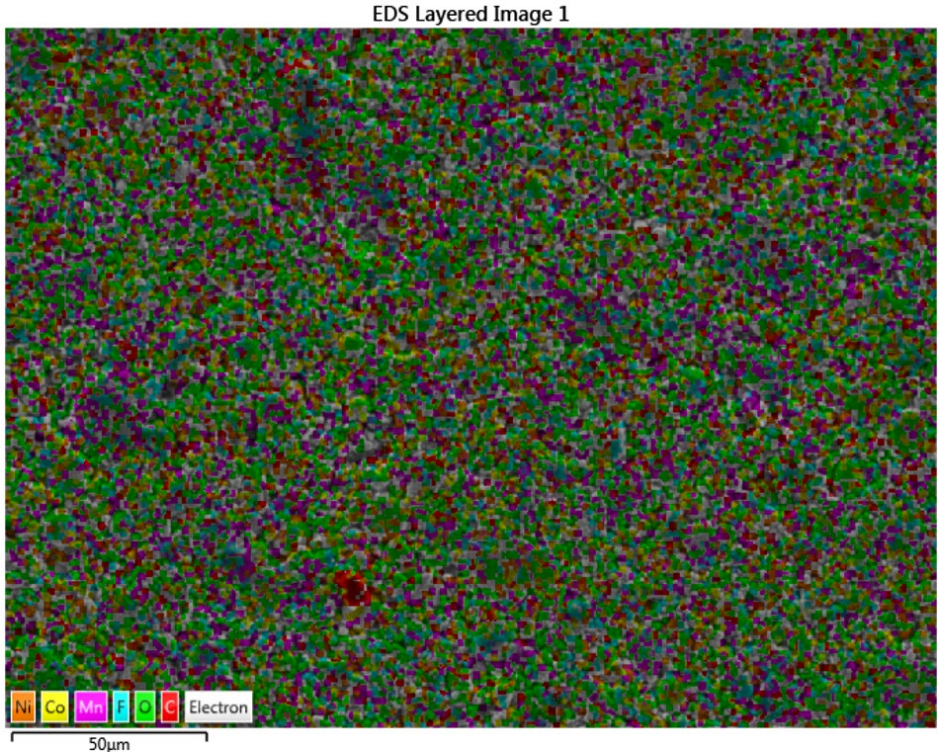
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Claim		Contention
		LG E78 eVehicle/ESS Pouch: 

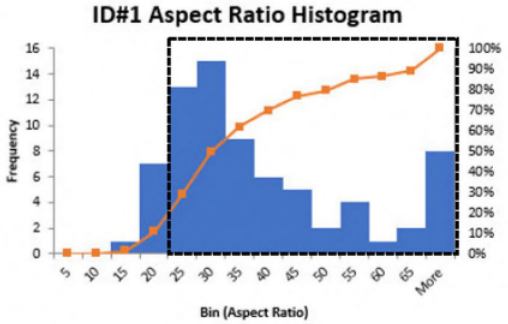
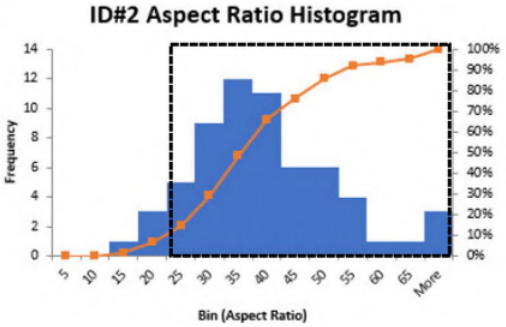
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Claim		Contention
		LG Gram Laptop (’19): 

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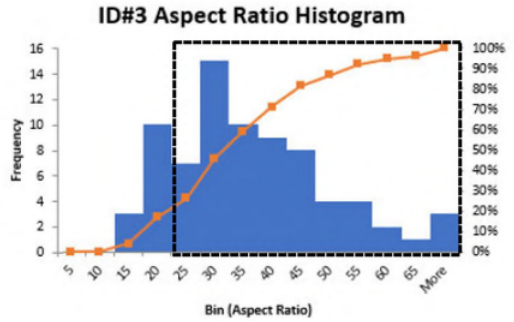
Claim		Contention
		LG G8 Cellphone Battery (’19): 
	and at least one additive	This element is met by the ’649 Accused Products, each of which comprises “at least one additive.” Specifically, each of the ’649 Accused Products comprises a component in addition to the identified carbon nanotubes, including binder materials (e.g., Poly(vinylidene fluoride) (“PVDF”) and Poly(vinyl pyrrolidone) (“PVP”), conductive material (e.g., Carbon black), or other materials (n-methyl pyrrolidone (“NMP”)).

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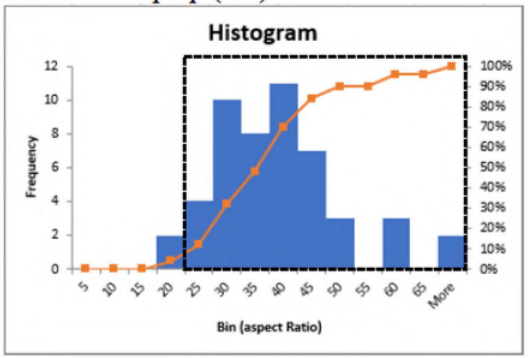
	wherein the oxidized, discrete carbon nanotubes have an aspect ratio of 25 to 500,	This element is met by the '649 Accused Products, each of which comprises discrete carbon nanotubes "wherein the discrete carbon nanotubes have an aspect ratio of 25 to 500." Specifically, each of the '649 Accused Products comprises carbon nanotubes having an aspect ratio of between 25 to 500 when its length is divided by its diameter. This is demonstrated by the below images relating to certain representative '649 Accused Products, which reflects that the '649 Accused Products comprise discrete nanotubes with an aspect ratio typically between 25 and 100: HG2  HG6 

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MJ1

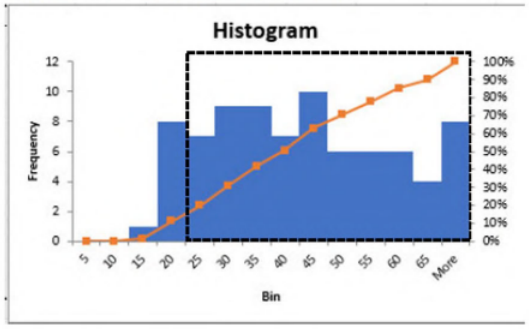


LG Gram Laptop ('22)

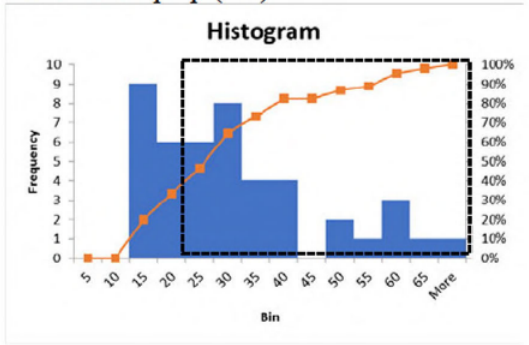


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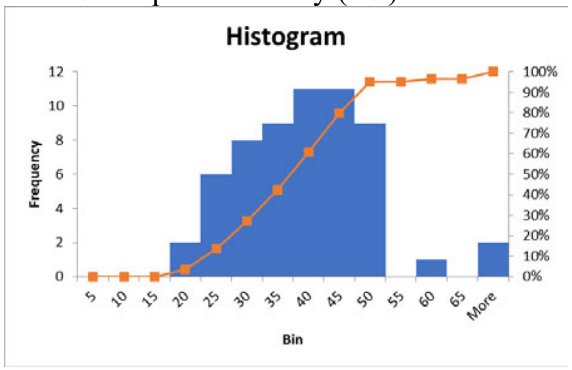
LG E78 eVehicle/ESS Pouch:



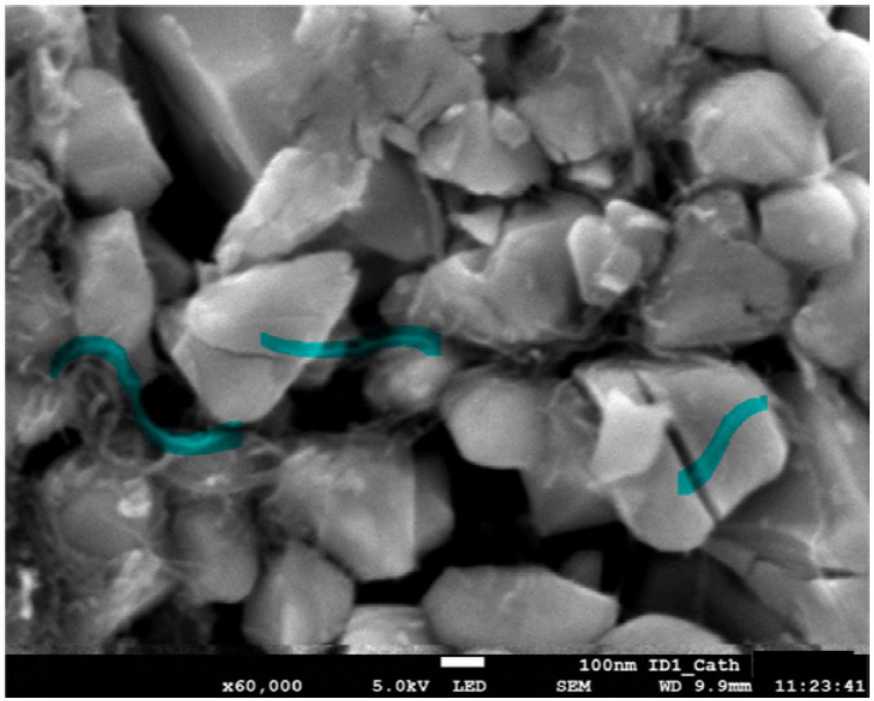
LG Gram Laptop ('19):



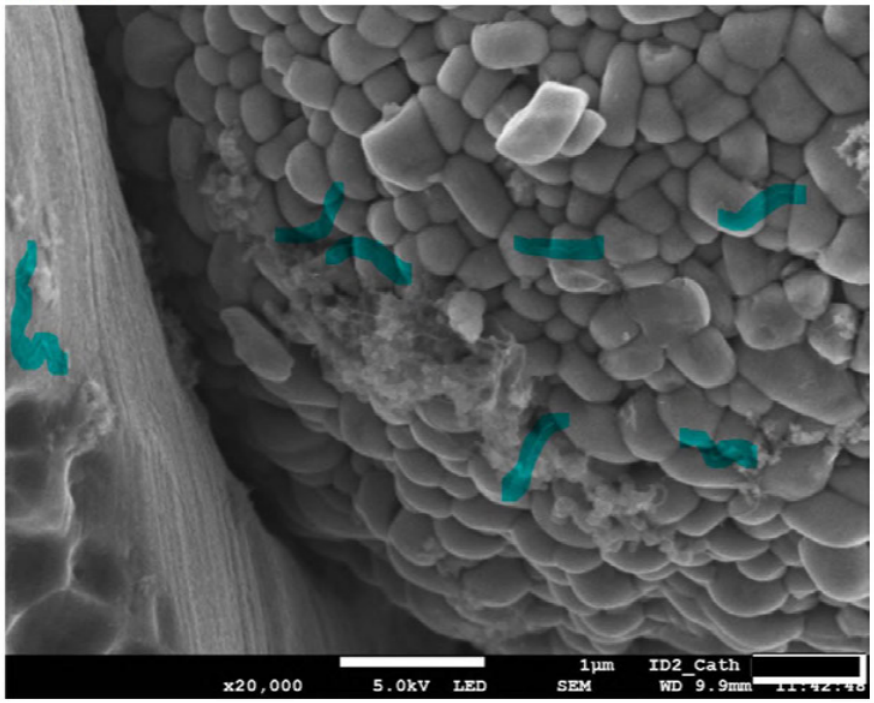
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	Claim	Contention
		LG G8 Cellphone Battery ('19): 
	are multiwall,	This element is met by the '649 Accused Products, each of which comprises discrete carbon nanotubes "wherein the discrete carbon nanotubes … are multiwall." Specifically, as shown in the below representative images from certain representative '649 Accused Products, each of the '649 Accused Products comprises multiwall carbon nanotubes with widths greater than 2 nm.

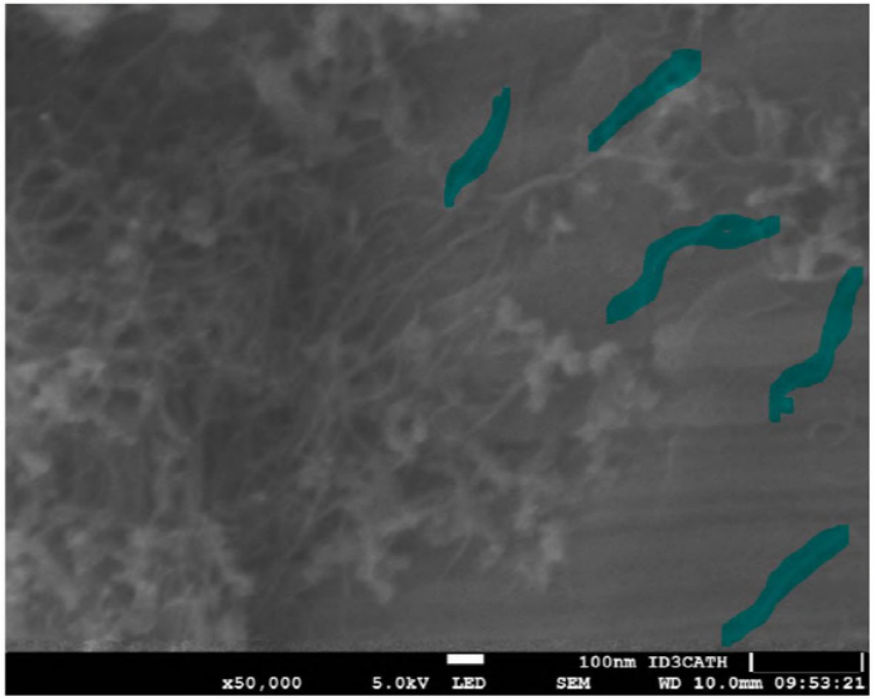
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Claim		Contention
		LG HG2: 

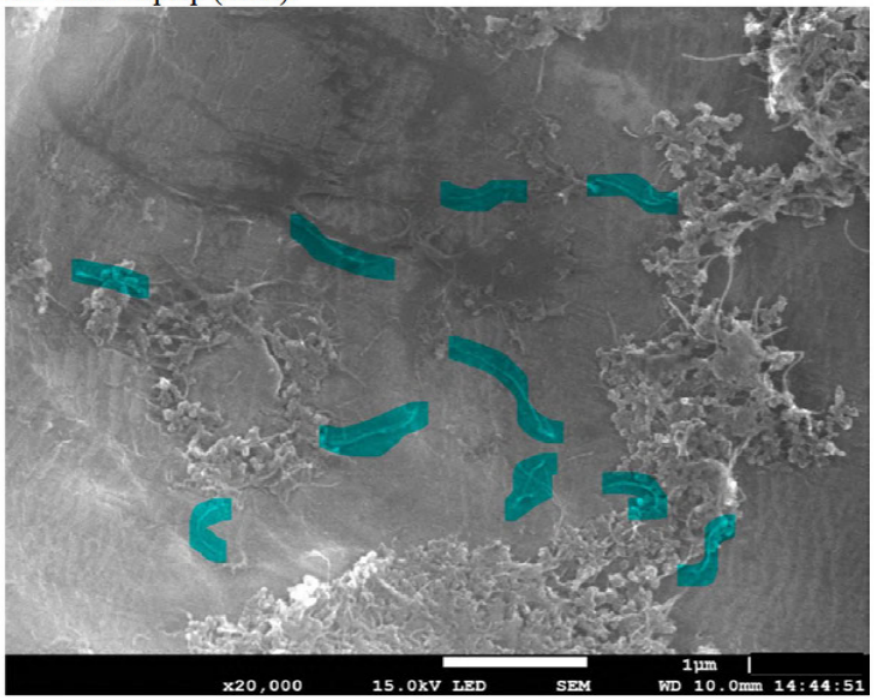
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Claim		Contention
		LG HG6: 

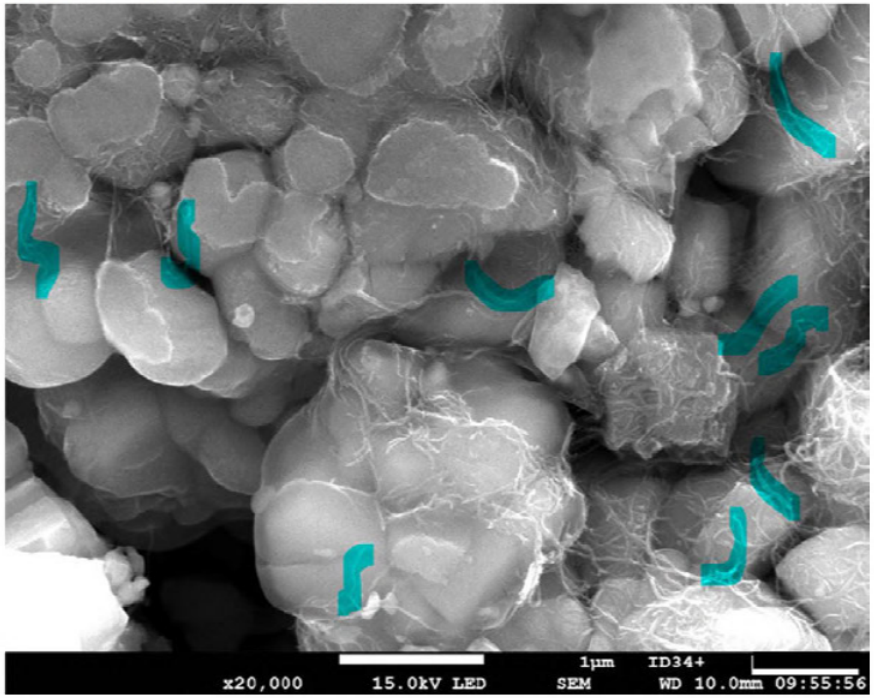
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Claim		Contention
		LG MJ1: 

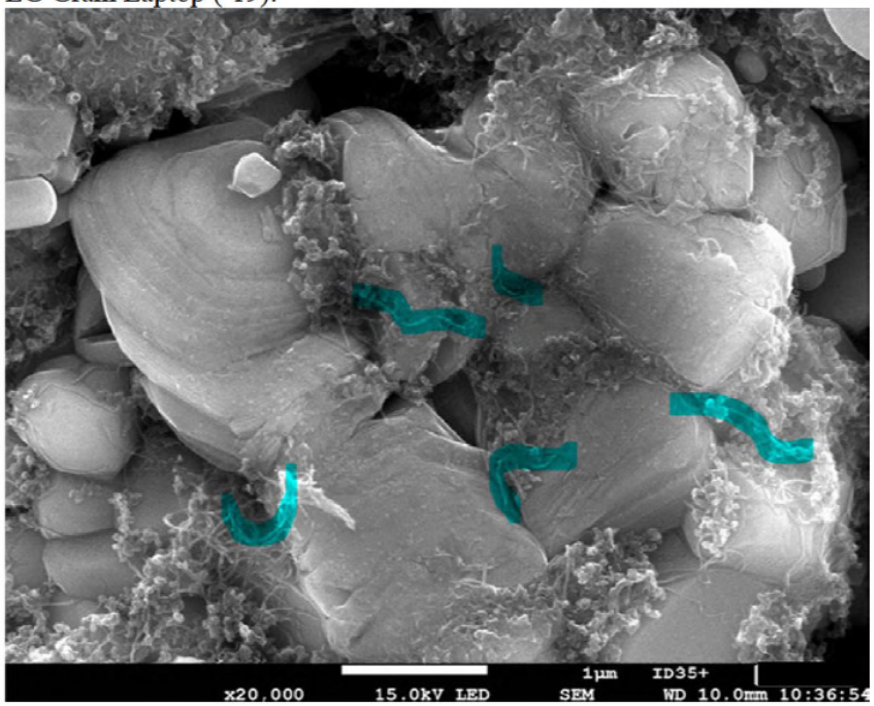
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Claim		Contention
		LG Gram Laptop (2022): 

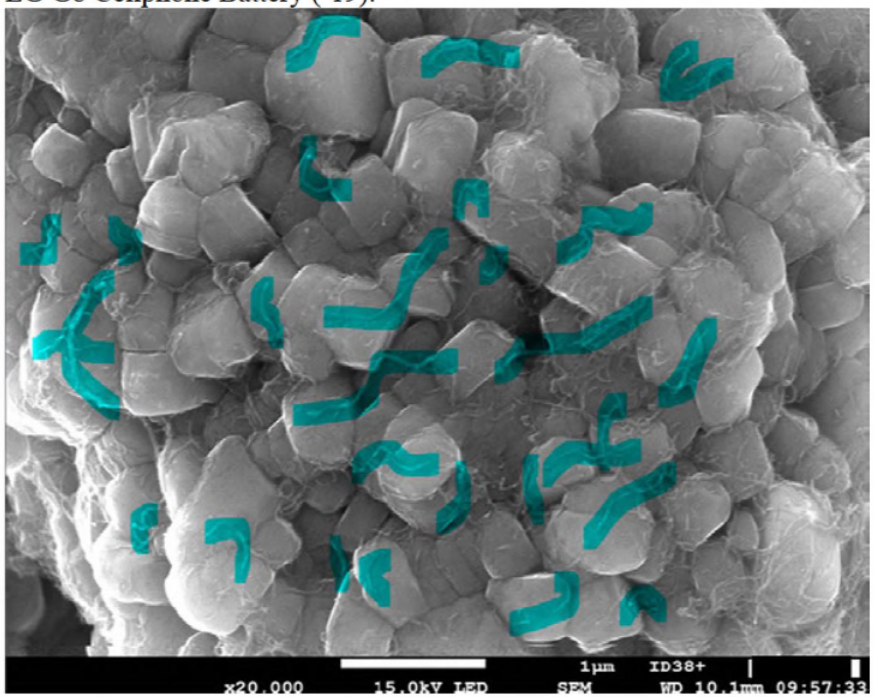
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Claim		Contention
		LG E78 eVehicle/ESS Pouch: 

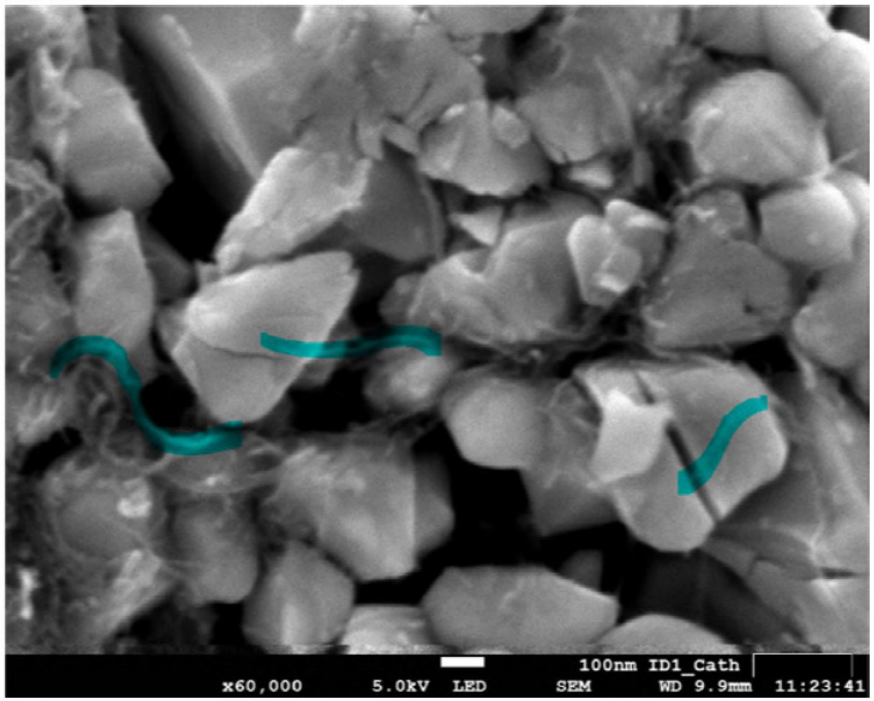
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Claim		Contention
		LG Gram Laptop ('19): 

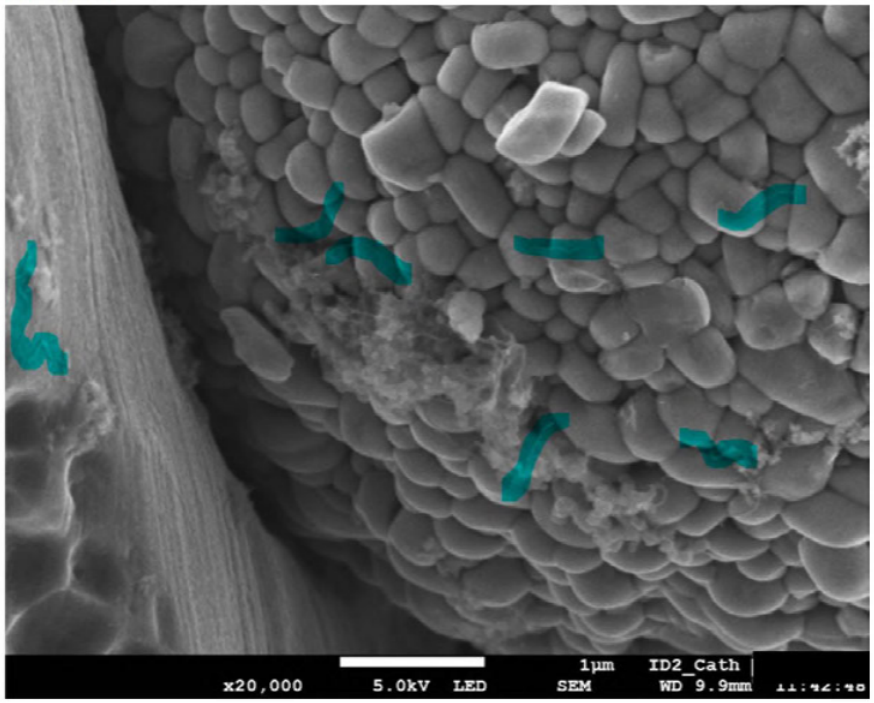
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Claim		Contention
		LG G8 Cellphone Battery ('19): 
	and are present in the range of greater than zero to about 30% by weight based on the total weight of the dispersion.	This element is met by the '649 Accused Products, each of which comprises discrete carbon nanotubes that "are present in the range of greater than zero to about 30% by weight based on the total weight of the dispersion." Specifically, as shown in the below representative images from certain representative '649 Accused Products, each of the '649 Accused Products comprises carbon nanotubes that make up 30% or less, by weight, of the dispersion.

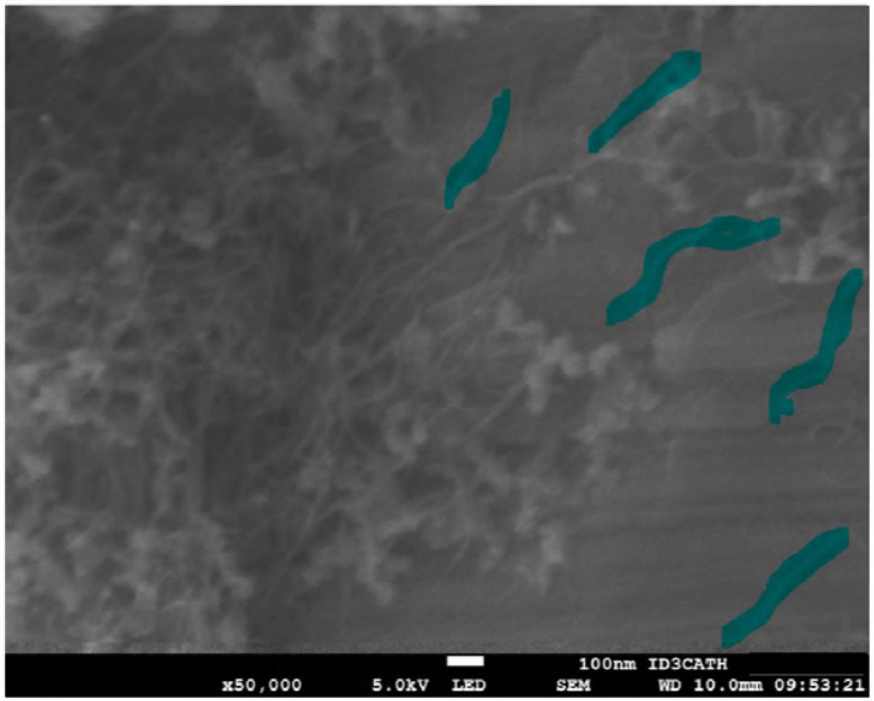
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Claim		Contention
		LG HG2: 

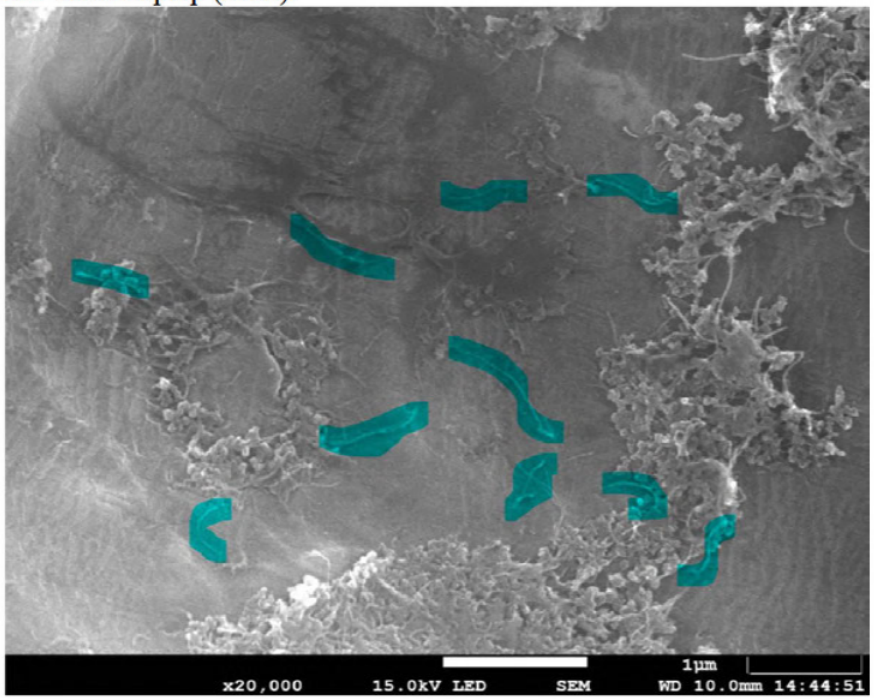
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Claim		Contention
		LG HG6: 

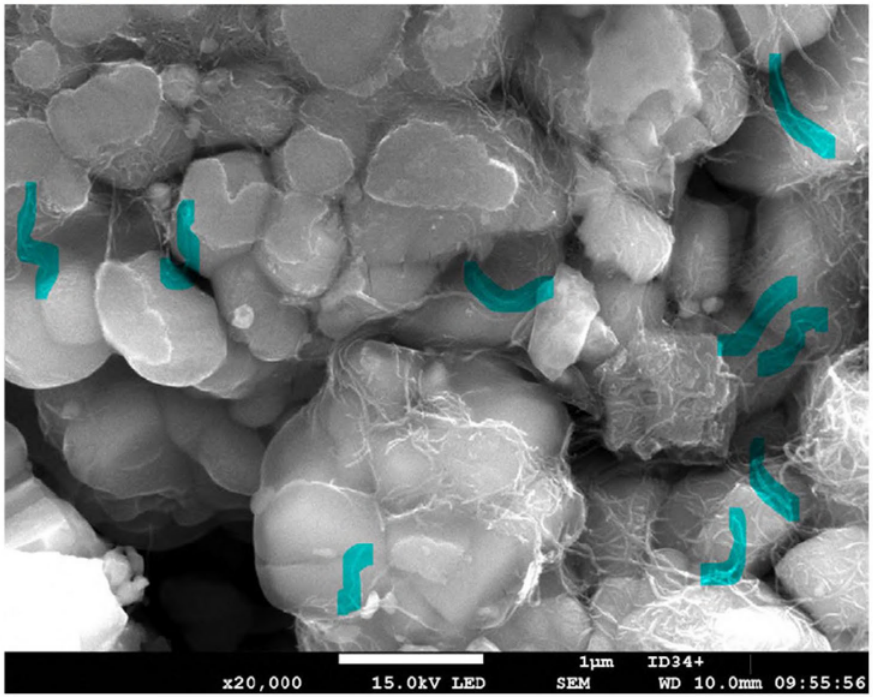
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Claim		Contention
		LG MJ1: 

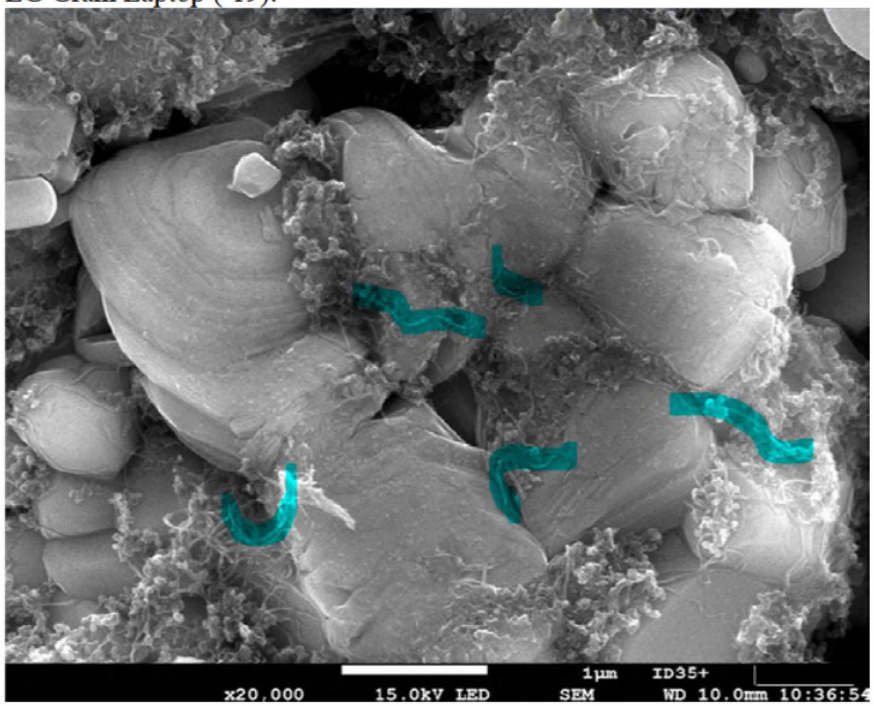
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	Claim	Contention
		LG Gram Laptop (2022): 

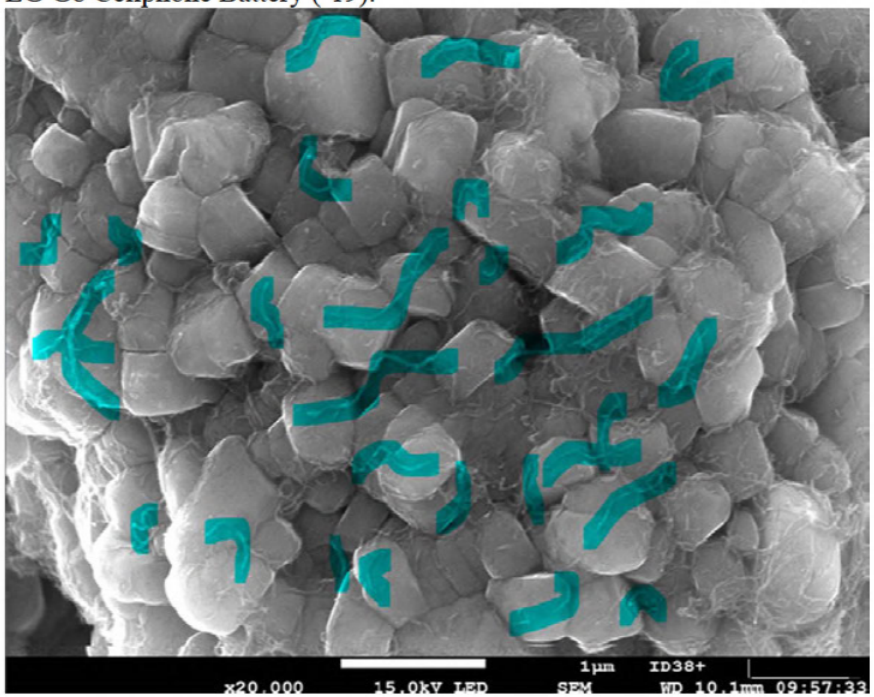
57
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Claim	Contention
	LG E78 eVehicle/ESS Pouch: 

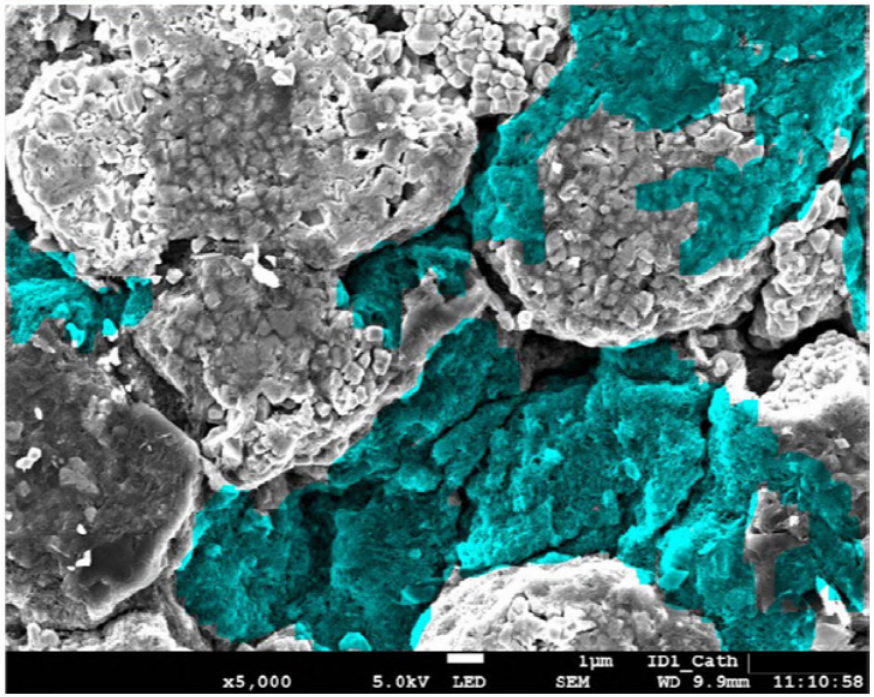
58
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Claim		Contention
		LG Gram Laptop ('19): 

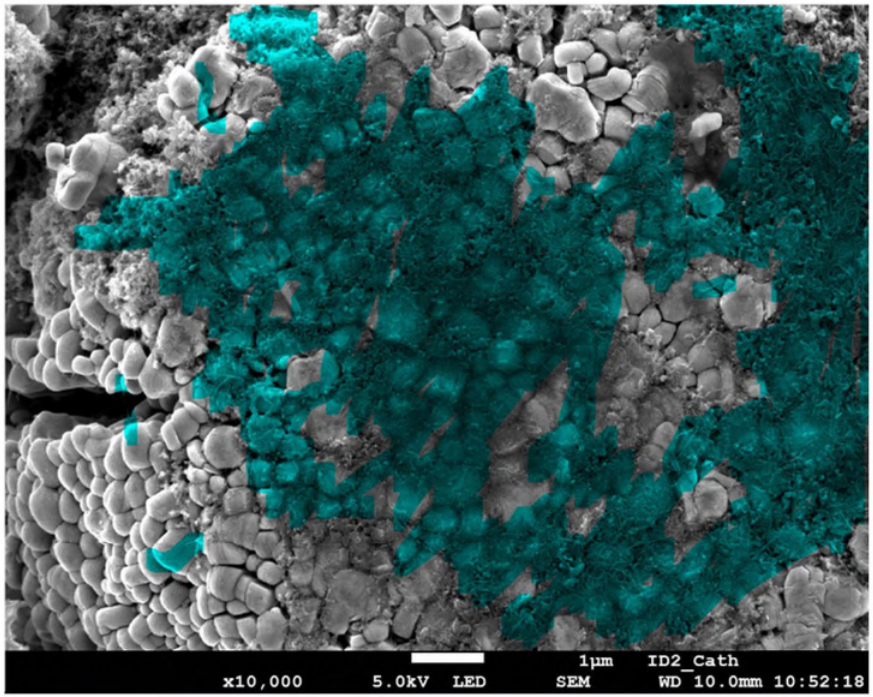
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	Claim	Contention
		LG G8 Cellphone Battery ('19): 
2	The dispersion of claim 1 wherein at least 70 percent by weight of the nanotubes are discrete.	This element is met by the '649 Accused Products, each of which comprises "[t]he dispersion of claim 1 wherein at least 70 percent by weight of the nanotubes are discrete." As detailed above, each of the '649 Accused Products comprises "[t]he dispersion of claim 1." Further, each of the '649 Accused Products comprises a dispersion of claim 1 wherein at least 70 percent by weight of the nanotubes are discrete.

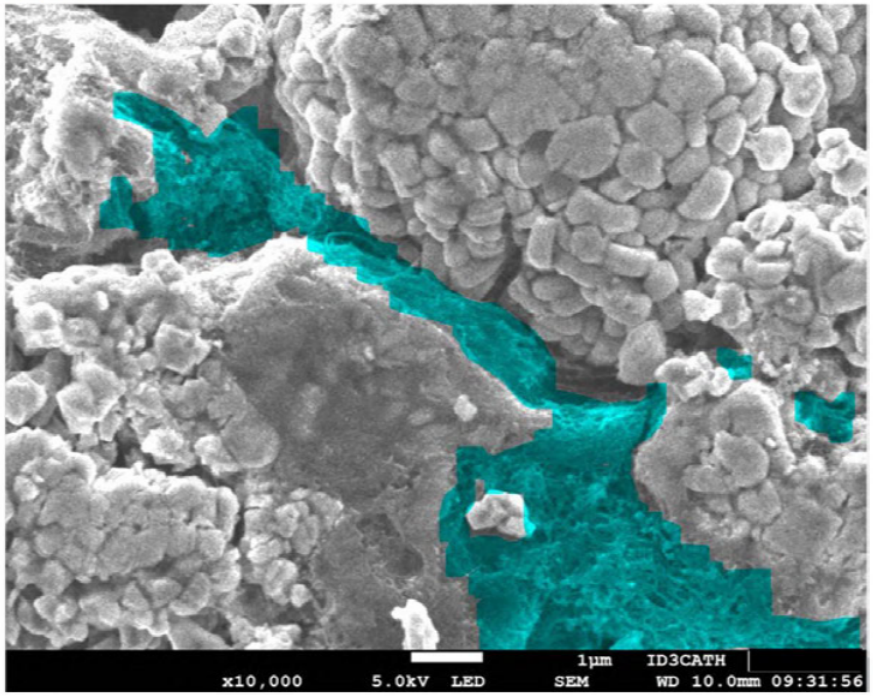
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Claim		Contention
		This is demonstrated by the below images from certain representative '649 Accused Products, which depicts (see blue) the carbon nanotubes coating, wrapping, and/or integrating with the active material in a monolayer or mat. LG HG2: 

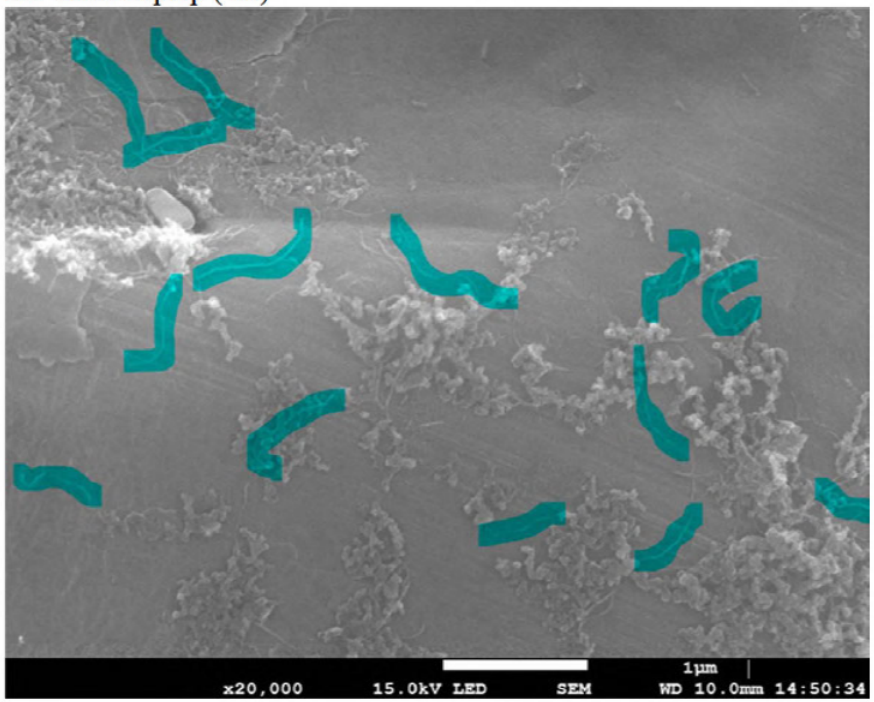
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Claim		Contention
		LG HG6: 

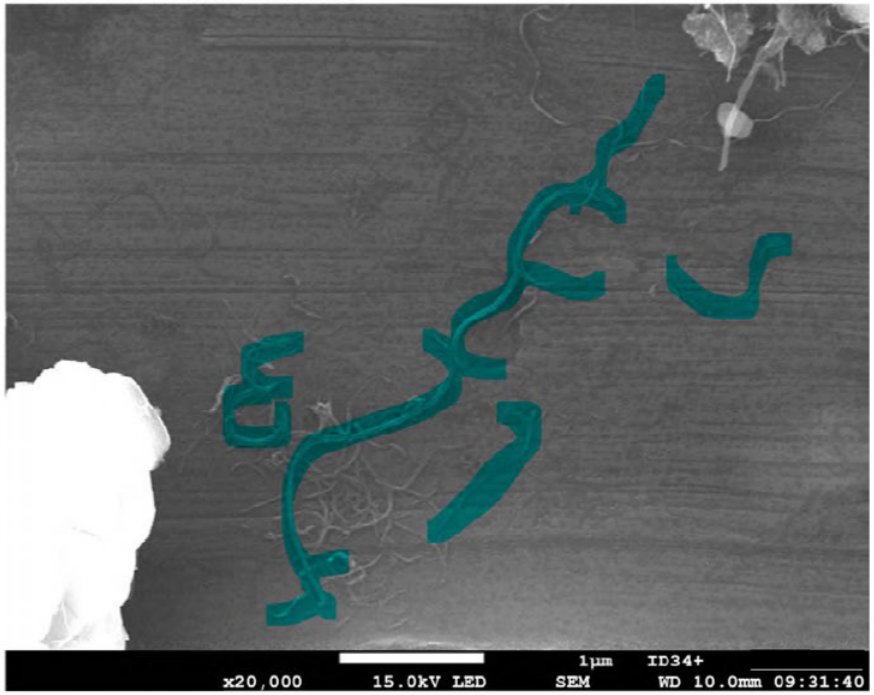
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Claim		Contention
		LG MJ1: 

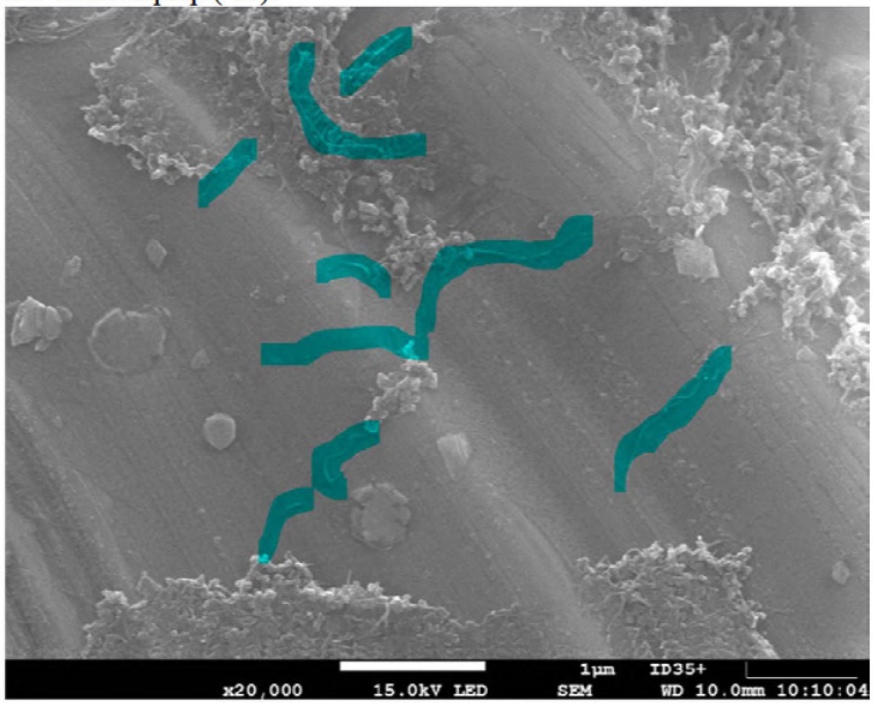
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	Claim	Contention
64		LG Gram Laptop ('22) 

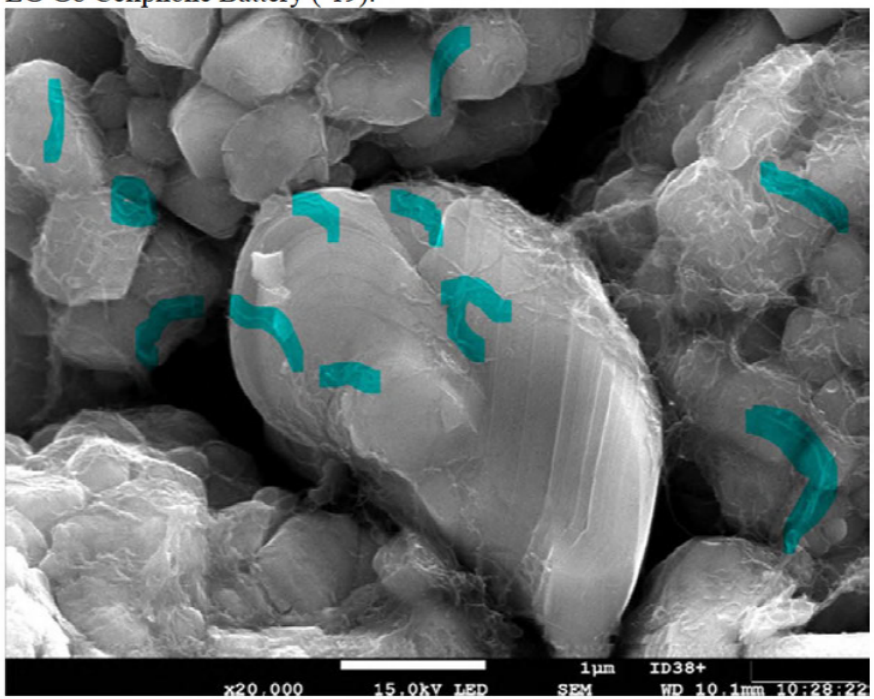
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	Claim	Contention
		LG E78 eVehicle/ESS Pouch: 

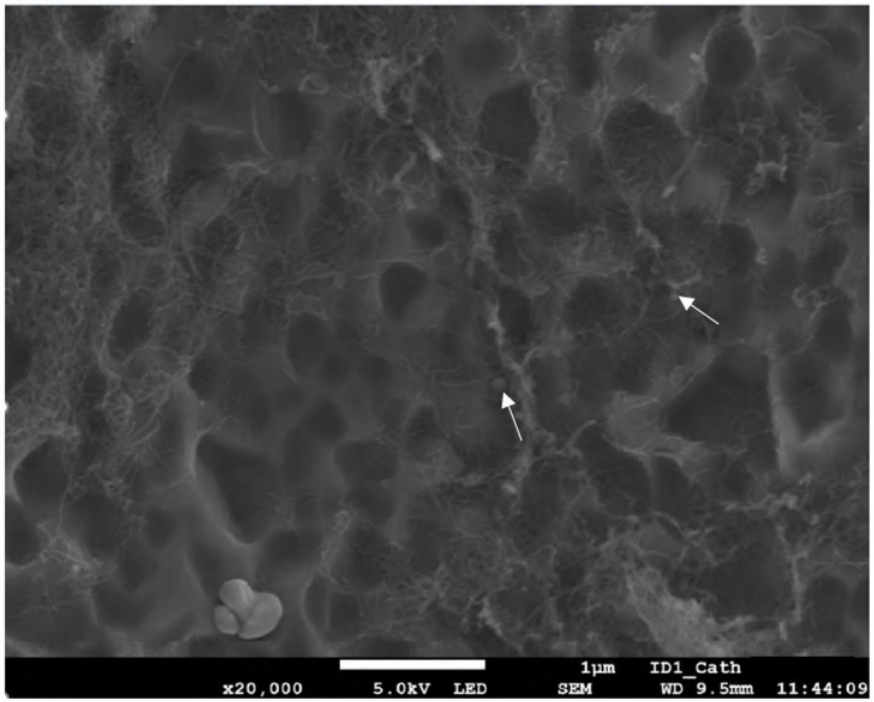
65
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	Claim	Contention
66		LG Gram Laptop ('19): 

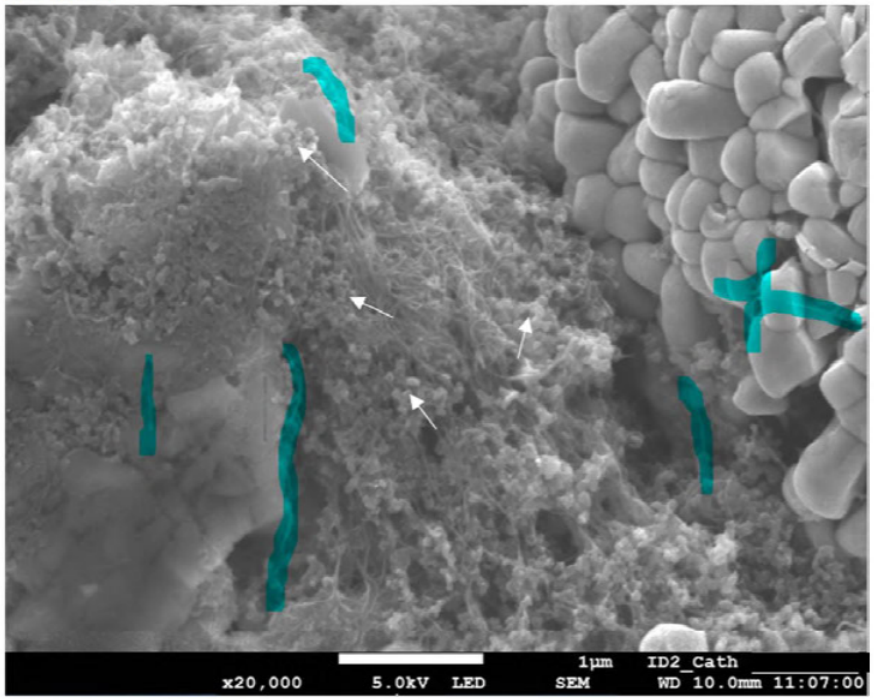
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Claim		Contention
		LG G8 Cellphone Battery ('19): 
11	The dispersion of claim 1, wherein the additive is a solvent.	This element is met by the '649 Accused Products, each of which comprises "[t]he dispersion of claim 1 wherein at least 70 percent by weight of the nanotubes are discrete." As detailed above, each of the '649 Accused Products comprises "[t]he dispersion of claim 1." Further, each of the '649 Accused Products comprises a dispersion of claim 1 wherein the additive is a solvent such as, for example, n-methyl pyrrolidone (NMP).

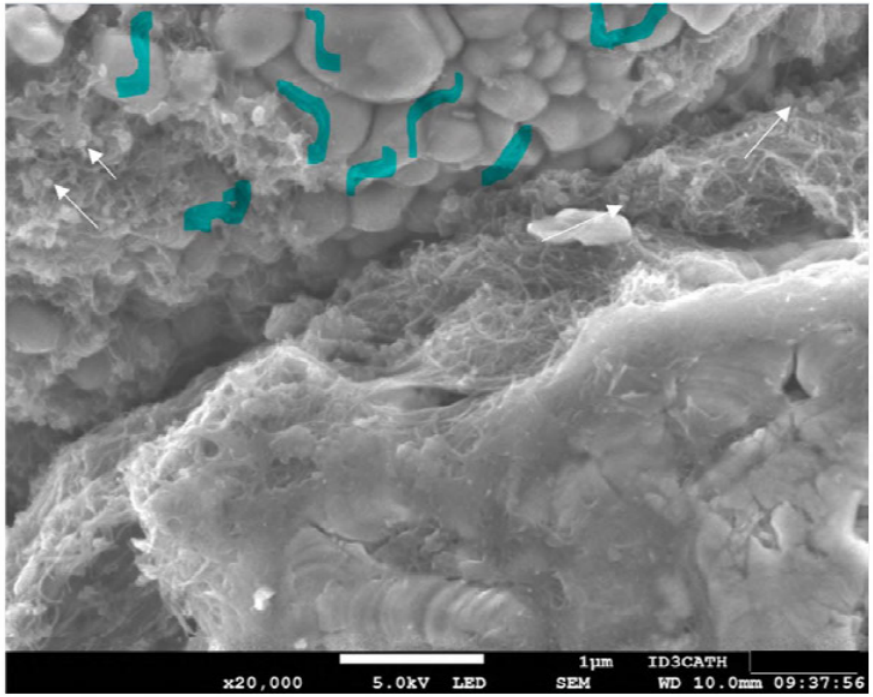
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17	The dispersion of claim 1 which further comprises at least one filler.	This element is met by the '649 Accused Products, each of which comprises "[t]he dispersion of claim 1 which further comprises at least one filler." As detailed above, each of the '649 Accused Products comprises "[t]he dispersion of claim 1." Further, each of the '649 Accused Products comprises at least the filler carbon black. This is demonstrated by the below images from certain representative '649 Accused Products, which shows (see arrows) the presence of the carbon black filler. LG HG2: 

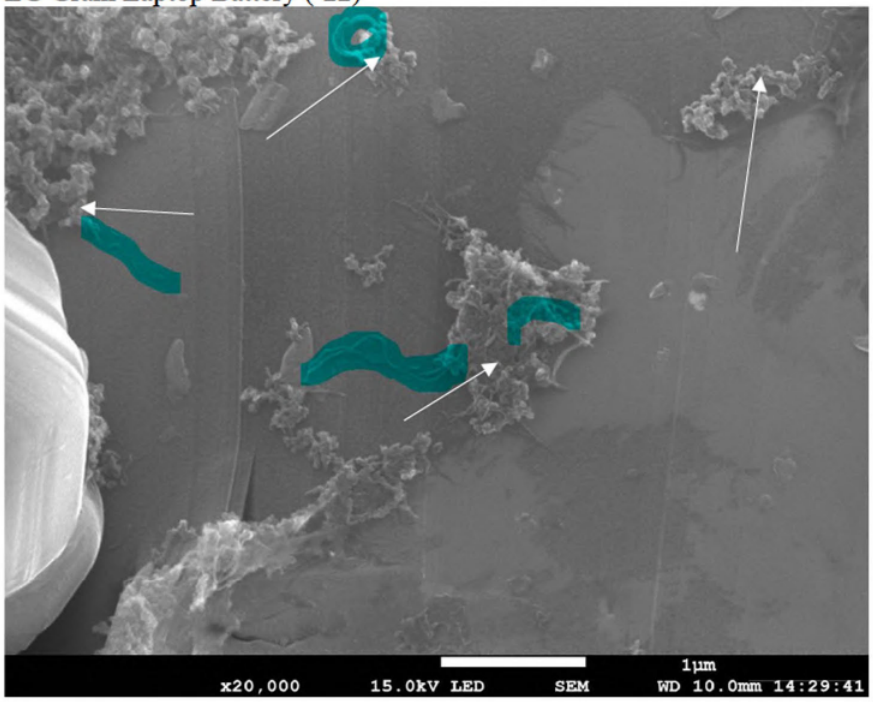
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69		LG HG6: 

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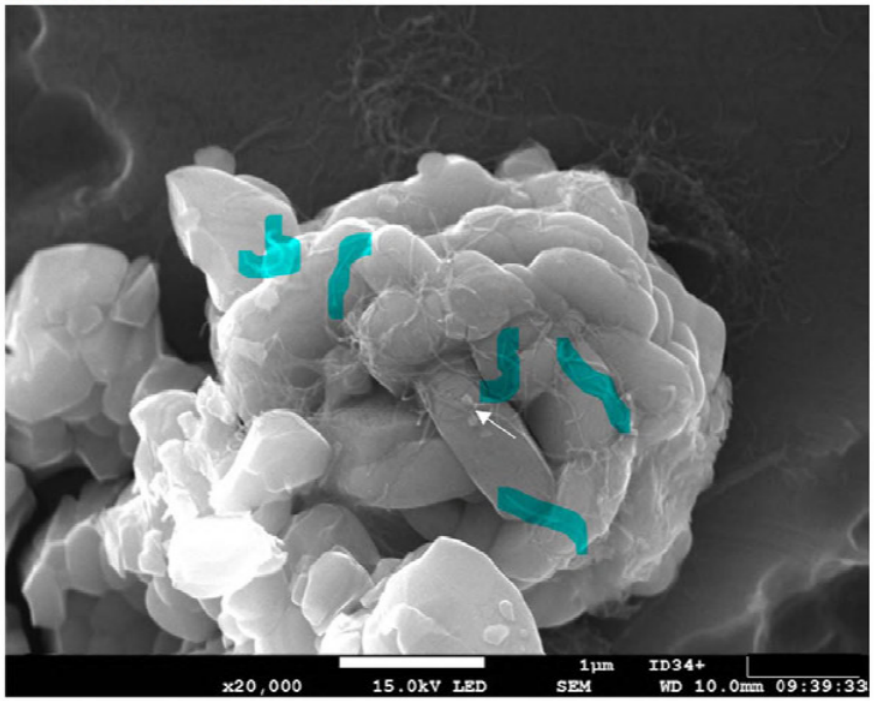
		LG MJ1: 

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		LG Gram Laptop Battery ('22) 

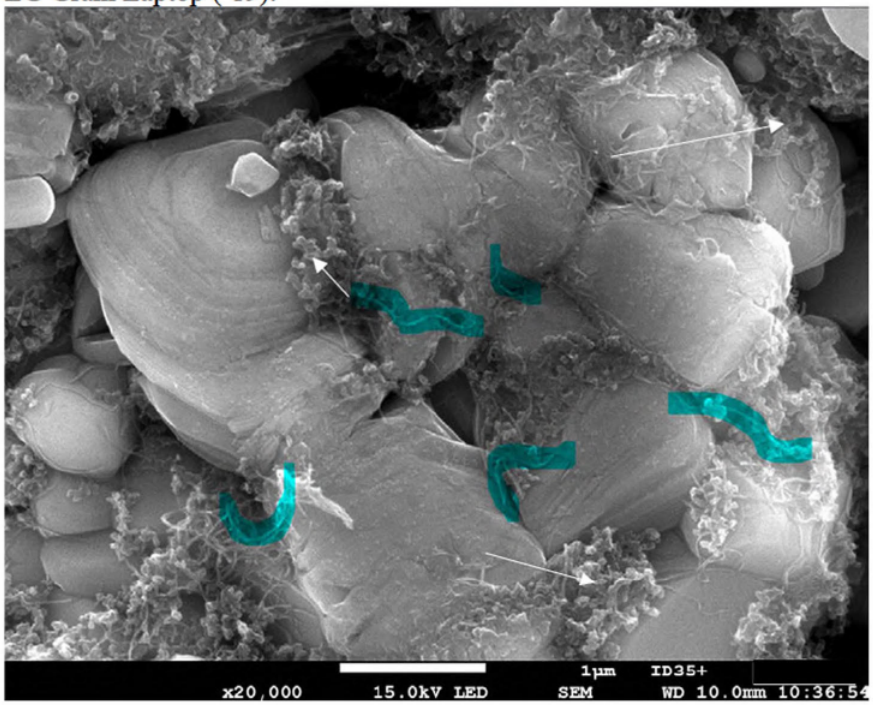
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LG E78 eVehicle/ESS Pouch:

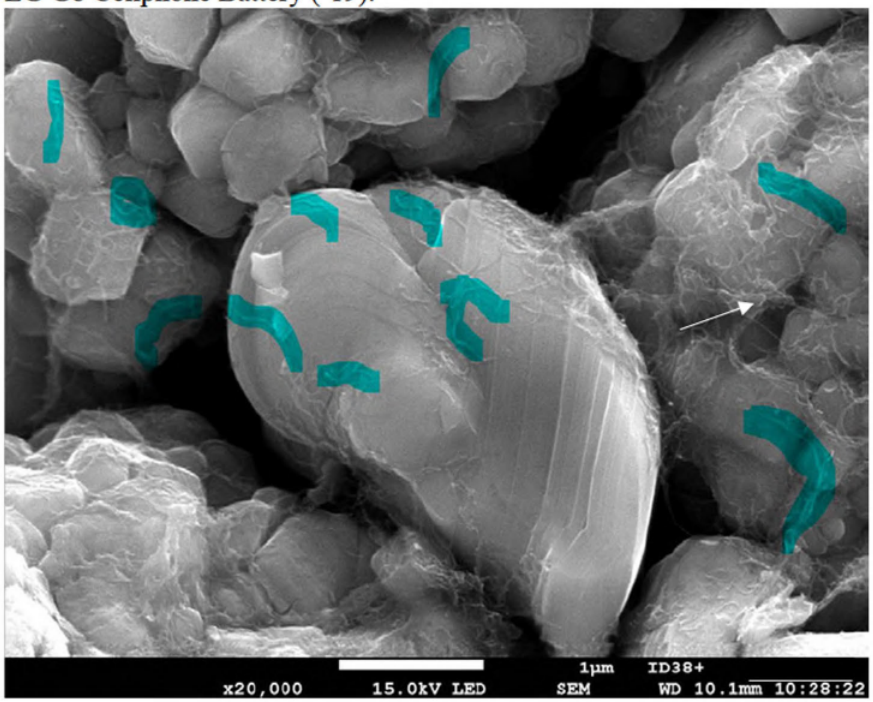


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LG Gram Laptop ('19):



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Claim		Contention
		LG G8 Cellphone Battery ('19): 
18	The dispersion of claim 17, wherein the filler has at least one dimension less than about 20 microns.	This element is met by the '649 Accused Products, each of which comprises "[t]he dispersion of claim 17, wherein the filler has at least one dimension less than about 20 microns." As detailed above, each of the '649 Accused Products comprises "[t]he dispersion of claim 17." Further, each of the '649 Accused Products comprises at least the filler carbon black, which is identifiable due to its roughly spherical 50-100 nm form, which is less than 20 microns.

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Claim		Contention
19	The dispersion of claim 18, wherein the filler is selected form silicon, lead, lead derivatives, carbon black, graphite, graphene, graphene oxides, paramagnetic particles and mixtures thereof.	This element is met by the '649 Accused Products, each of which comprises "[t]he dispersion of claim 18, wherein the filler is selected form silicon, lead, lead derivatives, carbon black, graphite, graphene, graphene oxides, paramagnetic particles and mixtures thereof.." As detailed above, each of the '649 Accused Products comprises "[t]he dispersion of claim 18." Further, as stated above, each of the '649 Accused Products comprises at least the filler carbon black.

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