AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	8/29/2022	District of Delaware

PLAINTIFF	DEFENDANT
Molecular Rebar Design, LLC and Black Diamond Structures, LLC	LG Chem, Ltd., LG Energy Solution, Ltd., LG Energy Solution Michigan, Inc., and LG Electronics, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 8,475,961 B2	7/2/2013	Molecular Rebar Design, LLC and Black Diamond Structures, LLC
2	US 9,636,649 B2	5/2/2017	Molecular Rebar Design, LLC and Black Diamond Structures, LLC
3	US 10,608,282 B2	3/31/2020	Molecular Rebar Design, LLC and Black Diamond Structures, LLC
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE	REQUEST ID
15/288,553	10/07/2016	MOLECULAR REBAR DESIGN, LLC	MORE-0020CIP2/262468	114668

Acknowledgement of Change to Small Entity Status

The entity status change request below filed through Private PAIR on 06/19/2020 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

X Applicant asserting small entity status. See 37 CFR 1.27.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/Gregory L. Porter/
Name:	Gregory L. Porter
Registration Number:	40131

Samsung Ex. 1002, Page 2 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/288,553	10/07/2016	1763	920	MORE-0020CIP2/262468	20	2

CONFIRMATION NO. 8330

CORRECTED FILING RECEIPT

130577
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

Date Mailed: 12/14/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Clive P. Bosnyak, Dripping Springs, TX;
Kurt W. Swogger, Austin, TX;

Applicant(s)

MOLECULAR REBAR DESIGN, LLC, Austin, TX

Assignment For Published Patent Application

MOLECULAR REBAR DESIGN, LLC, Austin, TX

Power of Attorney: The patent practitioners associated with Customer Number 130577

Domestic Priority data as claimed by applicant

This application is a CIP of 15/225,215 08/01/2016 PAT 9493626
which is a CIP of 15/166,931 05/27/2016 PAT 9422413
which is a CON of 14/924,246 10/27/2015 PAT 9353240
which is a CON of 13/993,206 06/11/2013 PAT 9212273
which is a 371 of PCT/EP2011/072427 12/12/2011
which claims benefit of 61/423,033 12/14/2010

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/19/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/288,553**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

Title

DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

Preliminary Class

524

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Samsung Ex. 1002, Page 6 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE	REQUEST ID
15/288,553	10/07/2016	MOLECULAR REBAR DESIGN, LLC	MORE-0020CIP2/262468	53189

Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 12/13/2017 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

X Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be notification of loss of entitlement to small or micro entity status, as applicable.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/Gregory L. Porter/
Name:	Gregory L. Porter
Registration Number:	40131

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/288,553	05/02/2017	9636649	MORE-0020CIP2/262468	8330

130577 7590 04/12/2017

ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Clive P. Bosnyak, Dripping Springs, TX;
MOLECULAR REBAR DESIGN, LLC, Austin, TX
Kurt W. Swogger, Austin, TX;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IR103 (Rev. 10/09)

Samsung Ex. 1002, Page 8 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

130577 7590 03/21/2017
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468	8330

TITLE OF INVENTION: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/21/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
GRINSTED, RONALD	1763	524-495000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Stephen P. Krupp
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Molecular Rebar Design, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Austin, Texas

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)
- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 500897 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Gregory L. Porter/ Date 2017-03-28
Typed or printed name Gregory L. Porter Registration No. 40131

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Samsung Ex. 1002, Page 9 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Patent Application Fee Transmittal				
Application Number:	15288553			
Filing Date:	07-Oct-2016			
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS			
First Named Inventor/Applicant Name:	Clive P. Bosnyak			
Filer:	Gregory L. Porter/Jeanne Dunn			
Attorney Docket Number:	MORE-0020CIP2/262468			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	480	480

Samsung Ex. 1002, Page 10 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**480**

Samsung Ex. 1002, Page 11 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Acknowledgement Receipt	
EFS ID:	28758451
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	28-MAR-2017
Filing Date:	07-OCT-2016
Time Stamp:	13:47:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$480
RAM confirmation Number	032917INTEFSW00000203500897
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

Samsung Ex. 1002, Page 12 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	IssueFeeTRansmittal.pdf	86631 be5f392e41e6e667efcf211ca7e652efd0322173	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30561 b90b3027cdf684cdbd95cf4225c32c00377584b7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	117192		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 13 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

130577 7590 03/21/2017
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

EXAMINER
GRINSTED, RONALD

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 03/21/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468	8330

TITLE OF INVENTION: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/21/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

130577 7590 03/21/2017
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468	8330

TITLE OF INVENTION: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/21/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
GRINSTED, RONALD	1763	524-495000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Samsung Ex. 1002, Page 15 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468	8330

130577 7590 03/21/2017

ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

EXAMINER	
GRINSTED, RONALD	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 03/21/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Samsung Ex. 1002, Page 17 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	15/288,553	BOSNYAK ET AL.	
	Examiner	Art Unit	
	RONALD GRINSTED	1763	

All participants (applicant, applicant's representative, PTO personnel):

(1) *RONALD GRINSTED*. (3)_____.

(2) *Gregory L. Porter*. (4)_____.

Date of Interview: *16 February 2017*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1-23*.

Identification of prior art discussed: *Tour et al. (US2007/0259994 A1), Bhattacharyya et al. (Carbon, 2008, Vol. 46, pp. 1037-1045)*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

-- Examiner contacted Applicant's representative to inform Applicant of allowable subject matter.
-- Examiner requested Applicants file a Terminal Disclaimer of application 15/225,215 - Agreed.
-- Examiner requested resubmitting declaration of Dr. Henderson from parent application 15/225,215 - Agreed.
-- Examiner requested by Examiner's Amendment to change in claims 1 and 20 the phrase "up to about 30%" to "present in the range of greater than zero to about 30% …" and in claim 14, change the phrase "or " to "and"- Agreed.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/RONALD GRINSTED/ Examiner, Art Unit 1763	/LING-SIU CHOI/ Supervisory Patent Examiner, Art Unit 1763

Samsung Ex. 1002, Page 18 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Notice of Allowability	Application No. 15/288,553	Applicant(s) BOSNYAK ET AL.	
	Examiner RONALD GRINSTED	Art Unit 1763	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *October 7, 2016*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-23*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   Certified copies:
   a) ☒ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☒ Certified copies of the priority documents have been received in Application No. *13/993,206* .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date *February 16, 2017* .
5. ☒ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/RONALD GRINSTED/ Examiner, Art Unit 1763	/LING-SIU CHOI/ Supervisory Patent Examiner, Art Unit 1763

Continuation of Attachment(s) 2. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: November 10, 2016; February 16, 2017; October 7, 2016.

Samsung Ex. 1002, Page 20 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

DETAILED ACTION

This office action is in regards to a continuation in part filed October 7, 2016 of a continuation in part filed August 1, 2016 of a continuation in part filed May 27, 2016 of a continuing application filed October 27, 2015 of a 371 Application filed June 11, 2013 claiming priority to PCT/EP2011/072427 filed on December 12, 2011 and to provisional application 61/423,033 filed on December 14, 2010. **Claims 21-23** are new. **Claims 1-23** are currently being examined.

1. The present application is being examined under the pre-AIA first to invent provisions.

Terminal Disclaimer

2. The terminal disclaimer filed on **February 16, 2017** disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of **U.S. Patent Numbers 9,493,626; 9,422,413; 9,353,240; and 9,212, 273** have been reviewed and are accepted. The terminal disclaimer has been recorded.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with **Gregory L. Porter** on **February 16, 2017**.

The application has been amended for claims dated **February 8, 2017** as follows:

In regards to claim 1, line 3, change "present in the range of up to" **to** – present **in the range of greater than zero** to -.

Samsung Ex. 1002, Page 21 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

In regards to claim 20, lines 3-4, change "present in the range of up to" **to** – present **in the range of greater than zero** to -.

In regards to claim 14, line 2, change "or" **to** - and -.

Allowable Subject Matter

4. **Claims 1-23** are allowed.

5. The following is an examiner's statement of reasons for allowance:

6. The present claims are allowable over the closest references: **Tour et al. (US2007/0259994 A1) and Bhattacharyya et al. (Carbon, 2008, Vol. 46, pp. 1037-1045).**

Tour et al. teach a composition comprising of carbon nanotube-elastomer composites. Tour et al. teach the method of mixing carbon nanotubes with an elastomeric precursor, then crosslinking or curing the mixture to make a composite or blend of carbon nanotubes in an elastomeric material. Tour et al. teach that the carbon nanotubes are single-wall carbon nanotubes, multi-wall carbon nanotubes, double-wall carbon nanotubes. Tour et al. teach that the carbon nanotubes are chemically functionalized. Tour et al. teach about 0.01 to about 30 wt.% carbon nanotubes based on the total weight of the carbon nanotube-elastomer composite.

Bhattacharyya et al. teach a reinforced natural rubber composition comprising natural rubber, carboxylated multi-walled carbon nanotubes (c-MWCNT) and dispersed with sodium dodecyl sulfate. It would be apparent to one of ordinary skill that the aspect ratio of the carbon nanotubes of the figures would have an aspect ratio greater than 10. Bhattacharyya et al. teach the multi-walled carbon nanotubes are functionalized with carboxyl functionalities on the side walls of the MWCNTs. Bhattacharyya et al. disclose that the carboxylated multi-walled carbon nanotubes demonstrated a strong enhancement in the Young's modulus, tensile strength, and storage modulus at low-strain with only a small reduction in elongation to break with up to 8.3 wt.% of MWCNTs.

However, **Tour et al. and Bhattacharyya et al.** do not teach or fairly suggest the claimed dispersion, wherein the dispersion comprises: a plurality of oxidized, discrete carbon nanotube fibers,

Samsung Ex. 1002, Page 22 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

wherein the discrete carbon nanotube fibers have an aspect ratio of about 25 or to about 500, are multi-walled, and are present in the range of greater than zero to about 30% by weight based on the total weight of the composition; water; and an additive. In the declaration of Dr. Henderson dated February 17, 2017, it was demonstrated in the SEM micrographs and discussion that "Tour's cited method (Dyke et al.) when replicated did not result in discrete carbon nanotubes and concluded that "the express method taught by Tour for multiwall carbon nanotubes does not yield discrete multiwall carbon nanotubes". Additionally, it was demonstrated that "Bhattacharyya et al. does not teach or suggest discrete carbon nanotube fibers as claimed in independent claim 1. Specifically, Bhattacharyya itself confirms that below Fig. 10 stating: "It was not possible to resolve individual nanotubes at the film surface."

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONALD GRINSTED whose telephone number is (571)270-7634. The examiner can normally be reached on IFP.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ling-Siu Choi can be reached on 571-272-1098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Samsung Ex. 1002, Page 23 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RONALD GRINSTED/
Examiner, Art Unit 1763

/LING-SIU CHOI/
Supervisory Patent Examiner, Art Unit 1763

Samsung Ex. 1002, Page 24 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Examiner-Initiated Interview Summary	Application No. 15/288,553	Applicant(s) BOSNYAK ET AL.	
	Examiner RONALD GRINSTED	Art Unit 1763	

All participants (applicant, applicant's representative, PTO personnel):

(1) *RONALD GRINSTED*. (3)_____.

(2) *Gregory L. Porter*. (4)_____.

Date of Interview: *16 February 2017*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1-23*.

Identification of prior art discussed: *Tour et al. (US2007/0259994 A1), Bhattacharyya et al. (Carbon, 2008, Vol. 46, pp. 1037-1045)*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

-- Examiner contacted Applicant's representative to inform Applicant of allowable subject matter.
-- Examiner requested Applicants file a Terminal Disclaimer of application 15/225,215 - Agreed.
-- Examiner requested resubmitting declaration of Dr. Henderson from parent application 15/225,215 - Agreed.
-- Examiner requested by Examiner's Amendment to change in claims 1 and 20 the phrase "up to about 30%" to "present in the range of greater than zero to about 30% …" and in claim 14, change the phrase "or " to "and"- Agreed.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/RONALD GRINSTED/ Examiner, Art Unit 1763	/LING-SIU CHOI/ Supervisory Patent Examiner, Art Unit 1763

Samsung Ex. 1002, Page 25 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Notice of References Cited	Application/Control No. 15/288,553	Applicant(s)/Patent Under Reexamination BOSNYAK ET AL.	
	Examiner RONALD GRINSTED	Art Unit 1763	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2007/0259994 A1	11-2007	Tour; James M.	B82Y30/00	523/333
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Bhattacharyya et al., "Improving reinforcement of natural rubber by networking of activating carbon nanotubes", Carbon 46 (2008) 1037-1045.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	15288553
Filing Date	2016-10-07
First Named Inventor	Clive P. Bosnyak
Art Unit	
Examiner Name	
Attorney Docket Number	MORE-0020CIP2 / 262468

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	1	Fourth Office Action (Chinese Appl. No. 201180065089.4), dated September 26, 2016	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/RONALD GRINSTED/	Date Considered	02/21/2017

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Gregory L. Porter/	Date (YYYY-MM-DD)	2017-02-16
Name/Print	Gregory L. Porter	Registration Number	40131

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 29 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 30 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	15288553
Filing Date	2016-10-07
First Named Inventor	Clive P. Bosnyak
Art Unit	
Examiner Name	
Attorney Docket Number	MORE-0020CIP2 / 262468

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
/R.G/	1	101322197	CN	A	2008-12-10	Kojima Press Kogyo KK		
/R.G/	2	101296991	CN	A	2008-10-29	Arkema France		
/R.G/	3	101054453	CN	A	2007-10-17	Goodyear Tire & Rubber		

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	4	2003002456	WO	A2	2003-01-09	Institut National Polytechnique de Toulouse		

If you wish to add additional Foreign Patent Document citation information please click the Add button [Add]

NON-PATENT LITERATURE DOCUMENTS [Remove]

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
/R.G/	1	Fourth Office Action (Chinese Appl. No. 201180065089.4), dated September 26, 2016	

If you wish to add additional non-patent literature document citation information please click the Add button [Add]

EXAMINER SIGNATURE

Examiner Signature	/RONALD GRINSTED/	Date Considered	02/21/2017

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Gregory L. Porter/	Date (YYYY-MM-DD)	2016-11-10
Name/Print	Gregory L. Porter	Registration Number	40131

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 34 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15288553	BOSNYAK ET AL.
	Examiner	Art Unit
	RONALD GRINSTED	1763

CPC- SEARCHED		
Symbol	Date	Examiner
C08K 3/04 7/06 7/24	2/21/2017	/RG/
C01B 31/02 31/022 31/0206	2/21/2017	/RG/
B60C 1/00	2/21/2017	/RG/
C08L 21/02	2/21/2017	/RG/

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
524	495	2/21/2017	/RG/

SEARCH NOTES		
Search Notes	Date	Examiner
Searched EAST (see attached)	2/21/2017	/RG/
Searched Inventor and Assignee	2/21/2017	/RG/

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
524	495	2/21/2017	/RG/
C08K	3/04 7/06 7/24	2/21/2017	/RG/
C01B	31/02 31/022 31/0206	2/21/2017	/RG/
B60C	1/00	2/21/2017	/RG/
C08L	21/02	2/21/2017	/RG/

/RONALD GRINSTED/ Examiner.Art Unit 1763	/LING CHOI/ Supervisory Patent Examiner.Art Unit 1763

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15288553	BOSNYAK ET AL.
	Examiner	**Art Unit**
	RONALD GRINSTED	1763

CPC						
Symbol					**Type**	**Version**
B01F		17	/	0007	F	2013-01-01
C08K		7	/	06	I	2013-01-01
C08K		3	/	04	I	2013-01-01
			/			
			/			
			/			
			/			
			/			
			/			
			/			
			/			
			/			
			/			
			/			

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

/RONALD GRINSTED/ Examiner.Art Unit 1763	02/21/2017	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	23	
/LING CHOI/ Supervisory Patent Examiner.Art Unit 1763	02/21/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	none

U.S. Patent and Trademark Office — Part of Paper No. 20170221

Samsung Ex. 1002, Page 36 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15288553	BOSNYAK ET AL.
	Examiner	**Art Unit**
	RONALD GRINSTED	1763

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
524	495

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
524	495				

INTERNATIONAL CLASSIFICATION																
CLAIMED						NON-CLAIMED					
B	0	1	F	17 / 00 (2006.0)											
C	0	8	K	3 / 04 (2006.0)											
C	0	8	K	7 / 06 (2006.0)											

/RONALD GRINSTED/ Examiner.Art Unit 1763	02/21/2017	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	23	
/LING CHOI/ Supervisory Patent Examiner.Art Unit 1763	02/21/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	none

U.S. Patent and Trademark Office — Part of Paper No. 20170221

Samsung Ex. 1002, Page 37 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15288553	BOSNYAK ET AL.
	Examiner	**Art Unit**
	RONALD GRINSTED	1763

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
2	2	18	18												
3	3	19	19												
4	4	20	20												
5	5	21	21												
6	6	22	22												
7	7	23	23												
8	8														
9	9														
10	10														
11	11														
12	12														
13	13														
14	14														
15	15														
16	16														

/RONALD GRINSTED/ Examiner.Art Unit 1763	02/21/2017	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	23	
/LING CHOI/ Supervisory Patent Examiner.Art Unit 1763	02/21/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	none

U.S. Patent and Trademark Office Part of Paper No. 20170221

Samsung Ex. 1002, Page 38 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15288553	BOSNYAK ET AL.
	Examiner	Art Unit
	RONALD GRINSTED	1763

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	02/21/2017								
1	1	=								
2	2	=								
3	3	=								
4	4	=								
5	5	=								
6	6	=								
7	7	=								
8	8	=								
9	9	=								
10	10	=								
11	11	=								
12	12	=								
13	13	=								
14	14	=								
15	15	=								
16	16	=								
17	17	=								
18	18	=								
19	19	=								
20	20	=								
21	21	=								
22	22	=								
23	23	=								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	27	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR	NEAR	ON	2013/09/13 16:30
S2	13	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR	NEAR	ON	2013/09/13 16:30
S3	16	((KENNETH) near2 (HESTER)).INV.	US-PGPUB; USPAT; USOCR	NEAR	ON	2013/09/13 16:31
S4	37	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 16:31
S5	18	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 16:31
S6	21	((KENNETH) near2 (HESTER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 16:31
S7	68	S4 or S5 or S6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 16:32
S8	0	S4 and S5 and S6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 16:32
S9	8	S4 and S5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	NEAR	ON	2013/09/13 16:33

			IBM_TDB			
S10	10	(designed nanotubes).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 16:58
S11	171	styron.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 16:58
S12	309273	(elastomer or rubber) and (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 17:56
S13	79521	nanotube	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 17:56
S14	4	S7 and (S11 or S10)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 17:57
S15	4487	S12 and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:17
S16	188342	(elastomer or rubber) same (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:17
S17	1908	S16 and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:17
S18	482	S16 and S13 and (aspect ratio)	US-PGPUB; USPAT; USOCR; FPRS;	NEAR	ON	2013/09/13 19:18

			EPO; JPO; DERWENT; IBM_TDB			
S19	9853	nanotube and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:18
S20	191	S16 and S13 and (aspect ratio) and S19	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:18
S21	2588	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:19
S22	76	S16 and S13 and (aspect ratio) and S21	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:19
S23	4	S16 and S13 and (aspect ratio) and S21 and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:19
S24	9	S16 and S13 and S21 and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:20
S25	194	S16 and S13 and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:30
S26	106	S16 and S13 and tire and (abrasion or wear)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:30
S27	106	S16 and S13 and tire and (abrasion or wear) and resistance	US-PGPUB; USPAT;	NEAR	ON	2013/09/13 19:30

Samsung Ex. 1002, Page 42 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S28	76	S16 and S13 and tire and (abrasion or wear) and resistance and (carbon black)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:31
S29	77	S16 and S13 and tire and (abrasion or wear) and resistance and ((carbon black) or silica)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:31
S30	73	S16 and S13 and tire and ((abrasion or wear) same resistance) and ((carbon black) or silica)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:31
S31	73	S16 and S13 and tire and ((abrasion or wear) with resistance) and ((carbon black) or silica)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:32
S32	60	S16 and S13 and tire and ((abrasion or wear) with resistance) and ((carbon black) or silica) and aspect	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:32
S33	17	S16 and S13 and tire and ((abrasion or wear) with resistance) and ((carbon black) or silica) and (aspect ratio)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/13 19:32
S34	235	functionaliz$3 and (discrete near3 nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 08:37
S35	188625	(elastomer or rubber) same (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 08:39

Samsung Ex. 1002, Page 43 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

S36	4	functionaliz$3 and (discrete near3 nanotube) and S35	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 08:39
S37	1	((elastomer or rubber) same (accelerator or sulfur)) and (discrete near3 nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 09:24
S38	518	((elastomer or rubber) same (accelerator or sulfur)) and (carbon nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 09:26
S39	90	((elastomer or rubber) same (accelerator or sulfur)) and (carbon nanotube) and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 09:26
S40	32	((elastomer or rubber) same (accelerator or sulfur)) and (carbon nanotube) and discrete and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 09:27
S41	68	((elastomer or rubber) same ((boron or silicon) near3 nanotube))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 09:32
S42	51	((elastomer or rubber) same ((boron or silicon) near2 nanotube))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 09:33
S43	4	((elastomer or rubber) same ((boron or silicon) near2 nanotube)) and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 09:33
S44	175	functionaliz$3 and (discrete near3 nanotube) and (boron or silicon)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	NEAR	ON	2013/09/19 10:07

			DERWENT; IBM_TDB			
S45	7	functionaliz$3 and ((discrete near3 nanotube) same (boron or silicon))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 10:08
S46	0	functionaliz$3 and ((discrete near3 nanotube) same (boron or silicon)) and (elastomer or rubber)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 10:08
S47	4	((discrete near3 nanotube) same (boron or silicon)) and (elastomer or rubber)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 10:09
S48	0	"2009169876.pn"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 11:37
S49	0	"20090169876.pn"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 11:37
S50	2	"20090169876"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2013/09/19 11:38
S51	124	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/08 15:52
S52	67	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/08 15:52
S53	64	((KENNETH) near2 (HESTER)).INV.	US-PGPUB; USPAT; USOCR;	NEAR	ON	2014/03/08 15:52

Samsung Ex. 1002, Page 45 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S54	8	S51 and S52 and S53	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/08 15:52
S55	219	functionaliz$3 and (discrete near2 nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/08 16:25
S56	23	functionaliz$3 and (discrete near2 nanotube) and (elastomer or rubber)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/09 12:58
S57	14	S56 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/09 13:04
S58	358883	(elastomer or rubber) and (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/09 13:05
S59	17887	S58 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/09 13:05
S60	2843	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/09 13:05
S61	17	S58 and S60 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/03/09 13:05
S62	374577	(elastomer or rubber) and (vulcaniz$5	US-PGPUB;	NEAR	ON	2014/11/05

		or cure$2)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			12:10
S63	3222	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 12:10
S64	18	S62 and S63 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 12:10
S65	630	S62 and S63	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:18
S66	580	S62 and S63 and aspect	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:19
S67	323	S62 and S63 and (aspect ratio)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:19
S68	700	(nanotube same discrete) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:36
S69	59	S62 and S68 and aspect	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:37
S70	425	(nanotube with discrete) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	NEAR	ON	2014/11/05 14:37

Samsung Ex. 1002, Page 47 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			IBM_TDB			
S71	31	S62 and S70 and aspect	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:37
S72	277	(nanotube near3 discrete) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:38
S73	10	S62 and S72 and aspect	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:39
S74	10	S62 and S72 and aspect and (carbon or CNT)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 14:42
S76	203	(nanotube near discrete) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 15:39
S77	235	(nanotube near2 discrete) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 15:40
S78	3754	(nanotube near2 (discrete or individual or single)) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 15:41
S79	2141	(nanotube near (discrete or individual or single)) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 15:41
S80	239	S62 and S79 and (aspect or diameter or length) and (carbon or CNT)	US-PGPUB; USPAT; USOCR; FPRS;	NEAR	ON	2014/11/05 15:43

Samsung Ex. 1002, Page 48 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			EPO; JPO; DERWENT; IBM_TDB			
S81	239	S62 and S79 and ((aspect ratio) or diameter or length) and (carbon or CNT)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 15:44
S82	9	S62 and S79 and ((aspect ratio) or diameter or length) and (carbon or CNT) and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 15:45
S83	1729	(nanotube near (discrete or individual or single)) and (functionaliz$4 same nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 18:50
S84	1490	(nanotube near (discrete or individual or single)) and (functionaliz$4 with nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 18:51
S85	119	S62 and S84 and ((aspect ratio) or diameter or length) and (carbon or CNT)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 18:51
S86	7	S62 and S84 and ((aspect ratio) or diameter or length) and (carbon or CNT) and (tire or tread)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/05 18:52
S87	1925	(nanotube near (discrete or individual or single or dispers$3)) and (functionaliz$4 with nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/07 17:45
S88	374707	(elastomer or rubber) and (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/07 17:47
S89	11	S88 and S87 and ((aspect ratio) or diameter or length) and (carbon or	US-PGPUB; USPAT;	NEAR	ON	2014/11/07 17:47

Samsung Ex. 1002, Page 49 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

		CNT) and (tire or tread)	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S90	8	("20070244263" or "20090169876" or "20100258238" or (WO "03078315")).pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/07 19:01
S91	1	("20070244263" or "20090169876" or "20100258238" or (WO "03078315")).pn. and S87	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/07 19:30
S92	374729	(elastomer or rubber) and (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/09 19:17
S93	277	(nanotube near3 discrete) and functionaliz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/09 19:17
S94	10	S92 and S93 and (aspect or diameter or length) and (carbon or CNT)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/09 19:17
S95	30	@pd<"20101214" and (elastomer same ((CNT or (carbon near3 nanotube)) with (aspect)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/10 18:44
S96	16	@pd<"20101214" and (elastomer same ((CNT or (carbon near3 nanotube)) with (aspect))) and functional$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2014/11/10 20:51
S97	1	("20070259994").pn.	US-PGPUB; USPAT; USOCR	NEAR	ON	2015/05/05 16:16
S98	1	("20070259994").pn. and (end or sidewall)	US-PGPUB; USPAT; USOCR	NEAR	ON	2015/05/05 16:17

Samsung Ex. 1002, Page 50 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

S99	1	("20070259994").pn. and (covalent or ionic or chemisorption or intercalation or surfactant or wrapping or cutting or solvat$5)	US-PGPUB; USPAT; USOCR	NEAR	ON	2015/05/05 16:29
S100	1	("20070259994").pn. and (covalent or ionic or chemisorption or intercalation or surfactant or wrap$5 or cut$4 or solvat$5)	US-PGPUB; USPAT; USOCR	NEAR	ON	2015/05/05 16:32
S101	1	("20070259994").pn. and (covalent or ionic or chemisorption or intercalat$4 or surfactant or wrap$5 or cut$4 or solvat$5)	US-PGPUB; USPAT; USOCR	NEAR	ON	2015/05/05 16:35
S102	151	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:05
S103	92	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:05
S104	64	((KENNETH) near2 (HESTER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:05
S105	231	S102 or S103 or S104	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:05
S106	16	@pd<"20101214" and (elastomer same ((CNT or (carbon near3 nanotube)) with (aspect))) and functional$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:06
S107	129967	nanotube	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:08
S108	252060	(elastomer or rubber) same (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:08

Samsung Ex. 1002, Page 51 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

S109	3498	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:08
S110	12	S108 and S107 and S109 and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/05/05 19:08
S111	155	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:48
S112	95	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:48
S113	64	((KENNETH) near2 (HESTER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:48
S114	235	S111 or S112 or S113	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:48
S115	10	(designed nanotubes).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:49
S116	246	styron.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:49
S117	292	S115 or S116 or (molecular rebar)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	NEAR	ON	2015/06/10 23:49

Samsung Ex. 1002, Page 52 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			DERWENT; IBM_TDB			
S118	37	S117 and S114	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:50
S119	131970	nanotube	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:53
S120	254605	(elastomer or rubber) same (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:53
S121	3547	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:53
S122	12	S120 and S119 and S121 and tire	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:53
S123	394355	(elastomer or rubber) and (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:55
S124	3547	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:55
S125	20	S123 and S124 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2015/06/10 23:55
S126	415778	(elastomer or rubber) and (vulcaniz$5 or cure$2)	US-PGPUB; USPAT; USOCR;	NEAR	ON	2016/04/15 12:14

Samsung Ex. 1002, Page 53 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S127	4040	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:14
S128	30	S126 and S127 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:14
S129	1391	(elastomer or rubber) and S127	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:16
S130	766	(elastomer or rubber) and S127 and oxidiz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:17
S131	19	S130 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:17
S132	174	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:19
S133	112	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:19
S134	197	S132 or S133	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/04/15 12:19
S135	89	S132 and S133	US-PGPUB;	NEAR	ON	2016/04/15

Samsung Ex. 1002, Page 54 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			12:20
S136	177	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/18 23:37
S137	114	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/18 23:37
S138	200	S136 or S137	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/18 23:37
S139	27	(molecular rebar).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/18 23:38
S140	12	S138 and S139	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/18 23:38
S141	177	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:54
S142	114	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:54
S143	200	S141 or S142	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	NEAR	ON	2016/06/20 10:54

Samsung Ex. 1002, Page 55 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			IBM_TDB			
S144	27	(molecular rebar).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:54
S145	12	S143 and S144 and dispersion	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:54
S146	11	S143 and S144 and dispersion and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:55
S147	11	S143 and S144 and dispersion and discrete and oxidiz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:55
S148	11	S143 and S144 and dispersion and discrete and oxidiz$3 and nanotube	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:55
S149	11	S143 and S144 and dispersion and discrete and oxidiz$3 and nanotube and multiwall	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:56
S150	6	S143 and S144 and dispersion and discrete and oxidiz$3 and nanotube and multiwall and aqueous	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 10:56
S151	6	S143 and S144 and dispersion and discrete and carbon and oxidiz$3 and nanotube and multiwall and aqueous	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 13:28
S152	6	S143 and S144 and dispersion and (discrete near2 carbon near2 nanotube) and oxidiz$3 and nanotube and multiwall and aqueous	US-PGPUB; USPAT; USOCR; FPRS;	NEAR	ON	2016/06/20 13:29

Samsung Ex. 1002, Page 56 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			EPO; JPO; DERWENT; IBM_TDB			
S153	52	dispersion and (discrete near2 carbon near2 nanotube) and oxidiz$3 and nanotube and multiwall and aqueous	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 13:29
S154	19	dispersion and ((discrete near2 carbon near2 nanotube) same oxidiz$3) and nanotube and multiwall and aqueous	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 13:30
S155	42	((WO "2003060002") or (FR "2887554") or (EP "2241522") or (JP "2004101958") or (JP "2004210830") or (wo "2008112362") or (EP "1061040") or (JP "2007516314") or (JP "2009534284") or (Wo "2004106240") or (WO "2007119231") or (WO "2009155267") or (WO "2012083358") or (WO "2013011516") or (EP "1665446") or (WO "2005014708") or (wo "2010117392") or (wo "2008153609") or (wo "2006096613") or (wo "2008011623") or (wo "2008051239") or (jp "2006240901")).pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 15:46
S156	4	((WO "2003060002") or (FR "2887554") or (EP "2241522") or (JP "2004101958") or (JP "2004210830") or (wo "2008112362") or (EP "1061040") or (JP "2007516314") or (JP "2009534284") or (Wo "2004106240") or (WO "2007119231") or (WO "2009155267") or (WO "2012083358") or (WO "2013011516") or (EP "1665446") or (WO "2005014708") or (wo "2010117392") or (wo "2008153609") or (wo "2006096613") or (wo "2008011623") or (wo "2008051239") or (jp "2006240901")).pn. and dispersion	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 15:58
S157	2	S155 and dispersion and (carbon nanotube)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 15:58
S158	0	S155 and aqueous	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/06/20 16:03
S159	3	S155 and (aqueous or water)	US-PGPUB;	NEAR	ON	2016/06/20

Samsung Ex. 1002, Page 57 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			16:03
S160	181	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 20:00
S161	117	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 20:00
S162	204	S160 or S161	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 20:00
S163	29	(molecular rebar).as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 20:00
S164	14	S162 and S163 and dispersion	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 20:00
S165	4266	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 21:34
S166	808	(elastomer or rubber) and S165 and oxidiz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 21:34
S167	22	S166 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	NEAR	ON	2016/09/02 21:34

Samsung Ex. 1002, Page 58 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			IBM_TDB			
S168	40	("20030096104" | "20030144415" | "20050006623" | "20050106093" | "20060286456" | "20070125707" | "20070215841" | "20070244263" | "20070259994" | "20070280876" | "20080026126" | "20080090951" | "20080102020" | "20080220148" | "20080290007" | "20080299374" | "20080312364" | "20090030105" | "20090038858" | "20090169876" | "20090171768" | "20090311489" | "20100004468" | "20100098877" | "20100201023" | "20100215724" | "20100258238" | "20100324315" | "20110311876" | "20120183770" | "20120329640" | "20130178722" | "20150182473" | "20150238476" | "20160095940" | "3884606" | "7229556" | "7453085" | "7611628" | "7708979").PN.	US-PGPUB; USPAT	NEAR	ON	2016/09/02 22:50
S169	4	((WO "2003060002") or (FR "2887554") or (EP "2241522") or (JP "2004101958") or (JP "2004210830") or (wo "2008112362") or (EP "1061040") or (JP "2007516314") or (JP "2009534284") or (Wo "2004106240") or (WO "2007119231") or (WO "2009155267") or (WO "2012083358") or (WO "2013011516") or (EP "1665446") or (WO "2005014708") or (wo "2010117392") or (wo "2008153609") or (wo "2006096613") or (wo "2008011623") or (wo "2008051239") or (jp "2006240901") or (jp "2005334594") or (kr "20090108426") or (wo "2010087971") or (wo "2013090844") or (jp "2005334594")).pn. and dispersion	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 22:58
S170	48	((WO "2003060002") or (FR "2887554") or (EP "2241522") or (JP "2004101958") or (JP "2004210830") or (wo "2008112362") or (EP "1061040") or (JP "2007516314") or (JP "2009534284") or (Wo "2004106240") or (WO "2007119231") or (WO "2009155267") or (WO "2012083358") or (WO "2013011516") or (EP "1665446") or (WO "2005014708") or (wo "2010117392") or (wo "2008153609") or (wo "2006096613") or (wo "2008011623") or (wo "2008051239") or (jp "2006240901") or (jp "2005334594") or (kr "20090108426") or (wo "2010087971") or (wo "2013090844") or (jp "2005334594")).pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 23:00
S171	0	S168 and S170	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	NEAR	ON	2016/09/02 23:22

Samsung Ex. 1002, Page 59 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			IBM_TDB			
S172	31	(S168 or S170) and dispersion	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 23:22
S173	2	("20070259994").pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2016/09/02 23:42
S174	4519	nanotube and functionaliz$3 and discrete	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2017/02/21 14:33
S175	860	(elastomer or rubber) and S174 and oxidiz$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2017/02/21 14:33
S176	25	S175 AND ((C08K3/04 OR C08K2201/011 OR C08K7/24 OR C08K7/06 OR C01B31/022 OR C08L21/02 OR C08L7/00 OR C08L21/00 OR C08L2666/55 OR B60C1/00).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2017/02/21 14:33
S177	200	((CLIVE) near2 (BOSNYAK)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2017/02/21 14:33
S178	134	((KURT) near2 (SWOGGER)).INV.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2017/02/21 14:33
S179	223	S177 or S178	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2017/02/21 14:33
S180	34	(molecular rebar).as.	US-PGPUB; USPAT; USOCR; FPRS;	NEAR	ON	2017/02/21 14:33

Samsung Ex. 1002, Page 60 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

			EPO; JPO; DERWENT; IBM_TDB			
S181	18	S179 and S180 and dispersion	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	NEAR	ON	2017/02/21 14:33

2/21/2017 2:36:09 PM
C:\Users\rgrinsted\Documents\EAST\Workspaces\15288553 - Dispersions comprising Discrete CNT fibers.wsp

Samsung Ex. 1002, Page 61 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2016-10-07
First Named Inventor	Clive P. Bosnyak
Art Unit	
Examiner Name	
Attorney Docket Number	MORE-0020CIP2 / 262468

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/R.G/	1	7453085	B2	2008-11-18	Chang et al.	
/R.G/	2	7708979	B2	2010-05-04	Lowman et al.	
/R.G/	3	7611628	B1	2009-11-03	Hinds, III	
/R.G/	4	7229556	B1	2007-06-12	Hinds, III, et al.	
/R.G/	5	3884606		1975-05-20	Schrenk	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
/R.G/	1	20070259994	A1	2007-11-08	Tour et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 62 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	2	20070244263	A1	2007-10-18	Burrowes	
/R.G/	3	20090169876	A1	2009-07-02	Yamamoto et al.	
/R.G/	4	20100258238	A1	2010-10-14	Hoover et al.	
/R.G/	5	20030096104	A1	2003-05-22	Tobita et al.	
/R.G/	6	20030144415	A1	2003-07-31	Wang et al.	
/R.G/	7	20080026126	A1	2008-10-23	Fleishner et al.	
/R.G/	8	20080312364	A1	2008-12-18	Piccione et al.	
/R.G/	9	20090030105	A1	2009-01-29	Miyasaka et al.	
/R.G/	10	20100201023	A1	2010-08-12	Piccione et al.	
/R.G/	11	20100258238	A1	2010-10-14	Hoover et al.	
/R.G/	12	20080102020	A1	2008-05-01	Niu et al.	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 63 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	13	20090038858	A1	2009-02-12	Griffo et al.	
/R.G/	14	20110311876	A1	2011-12-22	Sturgeon et al.	
/R.G/	15	20080090951	A1	2008-04-17	Mao Dongshenh et al.	
/R.G/	16	20080299374	A1	2008-12-04	Choi et al.	
/R.G/	17	20100215724	A1	2010-08-26	Prakash et al.	
/R.G/	18	20100324315	A1	2010-12-23	Atyabi et al.	
/R.G/	19	20070280876	A1	2007-12-06	Tour et al.	
/R.G/	20	20090311489	A1	2009-12-17	Sheehan et al.	
/R.G/	21	20080290007	A1	2008-11-27	Fagan et al.	
/R.G/	22	20100004468	A1	2010-01-07	Wong et al.	
/R.G/	23	20050106093	A1	2005-05-19	Iijima et al.	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 64 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	24	20070125707	A1	2007-06-07	Komatsu et al.	
/R.G/	25	20070215841	A1	2007-09-20	Ford et al.	
/R.G/	26	20050006623	A1	2005-01-13	Wong et al.	
/R.G/	27	20060286456	A1	2006-12-21	Fu et al.	
/R.G/	28	20080220148	A1	2008-09-11	Clarkson et al.	
/R.G/	29	20100098877	A1	2010-04-22	Cooper et al.	
/R.G/	30	20150182473	A1	2015-07-02	Bosnyak et al.	
/R.G/	31	20150238476	A1	2015-08-27	Bosnyak et al.	
/R.G/	32	20160095940	A1	2016-04-07	Swogger et al.	
/R.G/	33	20090171768	A1	2009-07-02	Chopra et al.	
/R.G/	34	20130178722	A1	2013-07-11	Aria et al.	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 65 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	35	20120329640	A1	2012-12-27	Bosnyak et al.	
/R.G/	36	20120183770	A1	2012-07-19	Bosnyak et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
/R.G/	1	2003060002	WO	A1	2003-07-24	KH Chemicals Co.		
/R.G/	2	2887554	FR	A1	2006-12-29	Arkema SA		
/R.G/	3	2241522	EP	A2	2010-10-20	Xerox Corp.		
/R.G/	4	2004101958	JP	A	2004-04-02	Sumitomo Ruber Ind.		
/R.G/	5	2004210830	JP	A	2004-07-29	JSR Corp.		
/R.G/	6	2008112362	WO	A2	2008-09-18	NaturalNano Inc.		
/R.G/	7	1061040	EP	A1	2000-12-20	Yoo		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	8	2007516314	JP		2007-06-21	Zyvex Corp.		
/R.G/	9	2009534284	JP		2009-09-24	Trinity College, Dublin		
/R.G/	10	2004106420	WO	A1	2004-12-09	Zyvex Corp.		
/R.G/	11	2007119231	WO	A1	2007-10-25	Trinity College, Dublin		
/R.G/	12	2009155267	WO	A1	2009-12-23	Mysticmd, Inc.		
/R.G/	13	2012083358	WO	A1	2012-06-28	Commonwelth Scientific and Ind. Res. Organization		
/R.G/	14	2013011516	WO	A1	2013-01-24	Vulcan Automotive Industries Ltd.		
/R.G/	15	1665446	EP	B1	2012-03-21	Commonwealth Scientific and Ind. Res. Organization		
/R.G/	16	2005014708	WO	A1	2005-02-17	William Marsh Rice University		
/R.G/	17	2010117392	WO	A1	2010-10-14	Bosnyak et al.		
/R.G/	18	2008153609	WO	A1	2008-12-18	Seldon Technologies, Inc.		

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 67 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	19	2006096613	WO	A1	2006-09-14	Northwestern University		
/R.G/	20	2008011623	WO	A1	2008-01-24	International Business Machines Corp.		
/R.G/	21	2008051239	WO	A1	2008-05-02	Hyperion Catalysis International, Inc.		
/R.G/	22	2006-240901	JP		2006-09-14	Bussan Nanotech Research Institute Inc.		
/R.G/	23	2005-334594	JP	A	2005-12-08	Toshihisa et al.		
/R.G/	24	20090108426	KR	A	2009-10-15	Korea Adv. Inst. Sci. & Tech.		
/R.G/	25	2010087971	WO	A2	2010-08-05	California Institute of Technology		
/R.G/	26	2013090844	WO	A1	2013-06-20	California Institute of Technology		
/R.G/	27	2005-334594	JP	A	2005-12-08	Masahiro		

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T5

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 68 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	1	DYKE, ET AL., "Solvent-free functionalization of carbon nanotubes", 125 J. Am. Chem. Soc. (2003), pg. 1156 - 1157	
/R.G/	2	AVILES ET AL., "Evaluation of Mild Acid Oxidation Treatments for MWCNT Functionalization", 47 Carbon (2009), pp. 2970-2975	
/R.G/	3	BHATTACHARYYA ET AL., "Improving reinforcement of natural rubber by networking of activated carbon nanotubes" 46 Carbon (2008), pp. 1037-145	
/R.G/	4	SUI ET AL., "Curing kinetics and mechanical behavior of natural rubber reinforced with pretreated carbon nanotubes", 485 Materials Sci.. & Eng. A (2008), pp. 524-531	
/R.G/	5	GOYANES ET AL., "Carboxylation treatment of multiwalled carbon nanotubes monitored by infrared and ultraviolet spectroscopies and scanning probe microscopy:", 16 Diamond & Related Materials (2007), pp. 412-417	
/R.G/	6	Nanocyl, Nanocyl NC3100 Series Product Information Sheet: http://www.nanocyl.com/en/Products-Solutions/Products/Research-Grades/Thin-Multi-Wall-Carbon-Nanotubes (May 29, 2012)	
/R.G/	7	SHANMUGHARAJ ET AL.,"Physical and chemical characteristics of multiwalled carbon nanotubes functionalized with aminosilane and its influence on the properties of natural rubber composites", 67(9) Compos. Sci. & Tech. (2007), pp. 1813-1822	
/R.G/	8	DEFALCO ET AL., "Carbon nanotubes as reinforcement of styrene-butadiene rubber", 254(1) Appl. Surface Sci. (2007), pp. 262-265	
/R.G/	9	ZHOU ET AL., "Polypropylene composites having carbon nanotubes and powder styrene-butadiene rubber", Instit. of Electr. Eng., Steveage, GB (2008)	
/R.G/	10	ZHOU ET AL., "New Fabrication and Mechanical Properties of Styrene-Butadiene Rubber/Carbon Nanotubes Nanocomposite", 26(12) J. Mater. Sci. & Tech. (2010), pp. 1127-1132	
/R.G/	11	TCHOUL ET AL., "Effect of Mild Nitric Acid Oxidation on Dispersability, Size, and Structure of Single-Walled Carbon Nanotubes", 10 Chem. Mater. (2007), pp. 5765-5772	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 69 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	12	XING ET AL., "Sonochemical Oxidation of Multiwalled Carbon Nanotubes", 21 Langmuir (2005), pgs. 4185-4190	
/R.G/	13	SPITALSKY, Z., ET AL., "HIGH VOLUME FRACTION CARBON NANOTUBE-EPOXY COMPOSITES", Nanotechnology, Vol. 20, No. 40, October 7, 2009	
/R.G/	14	KIM, HEE-CHEUL, ET AL., "THE EFFECT OF DIFFERENT TREATMENT METHODS OF MULTIWALLED CARBON NANOTUBES ON THERMAL AND FLEXURAL PROPERTIES OF THEIR EPOXY NANOCOMPOSITES", Journal of Polymer Science: Part B: Polymer Physics, Vol. 48, No. 11, June 1, 2010	
/R.G/	15	HADJIEV, V.G., ET AL., "RAMAN MICROSCOPY OF RESIDUAL STRAINS IN CARBON NANOTUBE/EPOXY COMPOSITES", Carbon, Vol. 48, No.6, May 1, 2010	
/R.G/	16	LEE, J.H., ET AL., "EFFECTS OF MOISTURE ABSORPTION AND SURFACE MODIFICATION USING 3-AMINOPROPYLTRIETHOXYSILANE ON THE TENSILE AND FRACTURE CHARACTERISTICS OF MWCNT/EPOXY NANOCOMPOSITES", Applied Surface Science, Vol. 256, No. 24, June 15, 2010	
/R.G/	17	ZHU, JIANG, ET AL., "IMPROVING THE DISPERSION AND INTEGRATION OF SINGLE-WALLED CARBON NANOTUBES IN EPOXY COMPOSITES THROUGH FUNCTIONALIZATION", Nano Letters, Vol. 3, No.8, August 1, 2003	
/R.G/	18	LIU, L., ET AL., "RUBBERY AND GLASSY EPOXY RESINS REINFORCED WITH CARBON NANOTUBES", Composites Science and Technology, Vol. 65, No. 11-12, September 1, 2005	
/R.G/	19	CHEN, WEI, ET AL., "CARBON NANOTUBE-REINFORCED POLYURETHANE COMPOSITE FIBERS", Composites Science and Technology, Vol. 66, No. 15, December 1, 2006	
/R.G/	20	WU, GUOLIANG, ET AL., "PREPARATION AND PROPERTIES OF HYDROXYLATED STYRENE-BUTADIENE-STYRENE TRI-BLOCK COPOLYMER IMULTI-WALLED CARBON NANOTUBES NANOCOMPOSITES VIA COVALENT BOND", Materials Science and Engineering; Vol. 527, No. 20, May 6, 2010	
/R.G/	21	BARROSO-BUJANS, F., ET AL., "EFFECTS OF FUNCTIONALIZED CARBON NANOTUBES IN PEROXIDE CROSSLINKING OF DIENE ELASTOMERS", European Polymer Journal, Vol. 45, No.4, April 1, 2009	
/R.G/	22	ZHOU, XIANG-WEN, ET AL., "PREPARATION AND PROPERTIES OF POWDER STYRENE-BUTADIENE RUBBER COMPOSITES FILLED WITH CARBON BLACK AND CARBON NANOTUBES", Materials Research Bulletin, Vol. 42, No. 3, February 22, 2007	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 70 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	23	VAST, L., ET AL., "PREPARATION AND ELECTRICAL CHARACTERIZATION OF A SILICONE ELASTOMER COMPOSITE CHARGED WITH MULTI-WALL CARBON NANOTUBES FUNCTIONALIZED WITH 7-OCTENYLTRICHLOROSILANE", Composites Science and Technology, Vol. 67, No.5, January 18, 2007	
/R.G/	24	BROZA, GEORG, ET AL., "THERMOPLASTIC ELASTOMERS WITH MULTI-WALLED CARBON NANOTUBES: INFLUENCE OF DISPERSION METHODS ON MORPHOLOGY", Composites Science and Technology; Vol. 70, No.6, June 1, 2010	
/R.G/	25	CHEN, SHUGUO, ET AL., "THERMAL DEGRADATION BEHAVIOR OF HYDROGENATED NITRILE-BUTADIENE RUBBER (HNBR) / CLAY NANOCOMPOSITE AND HMBR / CLAY/ CARBON NANOTUBE NANOCOMPOSITES", Thermochimica Acta; Vol. 491, No. 1-2, July 20, 2009	
/R.G/	26	BOKOBZA, "MULTIWALL CARBON NANOTUBE ELASTOMERIC COMPOSITES; A REVIEW", Polymer, Vol. 48, No. 17, August 3, 2007	
/R.G/	27	ZHANG ET AL., " Effect of Chemical Oxidation on the Sturcture of Single-Walled Carbon Nanotubes, 107(16) J. Phys. Chem. B (2003), pp. 3712-3718	
/R.G/	28	Press Release - "Biopact Launches R&D Kits in Philadelphia at Bio Conference", retrieved from Biopact.com (2016)	
/R.G/	29	YOONG ET AL., "Enhanced cytotoxicity to cancer cells by mitochondria-targeting MWCNTs containing platinum(IV) prodrug of cisplatin", 35(2) Biomaterials (10/18/2013), pgs. 748-759	
/R.G/	30	LUO ET AL., "Carbon nanotube nanoreservoir for controlled release of anti-inflammatory dexamethasone", 32(26) Elsevier Science Publishers BV, Barking GB (2011), pgs. 6316-6323	
/R.G/	31	WU ET AL., "PEGylated multi-walled carbon nanotubes for encapsulation and sustained release of oxaliplatin" 30(2) Pharmaceutical Research (2012), pgs.412-423	
/R.G/	32	WU ET AL., "Trojan-Horse Nanotube On-Command Intracellular Drug Delivery", 12(11) Nano Letters (2012), pgs. 6475-5480	
/R.G/	33	RAOOF ET AL., "Remotely triggered cisplatin release from carbon nanocapsules by radiofrequency fields", 34(7) Biomaterials (2013), pgs. 1862-1869	

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 71 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

/R.G/	34	AHMED ET AL., "Adsorption-Desorption Behavior of Polyvinyl Alcohol on Polystyrene Latex Particles", ACS Symp. Series 240 (1983), pgs. 77-94	
/R.G/	35	DANIELSSON, J.,"NMR Studies of the amylois b-peptide" Ph.D. Thesis, Stockholm University (2007)	
/R.G/	36	MASHAT ET AL., "Zippered release from polymer-gated carbon nanotubes", 22 J. Mater. Chem. (2012), pgs. 11503-11508	
/R.G/	37	SHEN ET AL., "Polyethyeneimine-Mediated Functionalization of Multiwalled Carbon Nanotubes: Synthesis, Characterization, and In Vitro Toxicity Assay, 113(8) J. Phys. Chem. C (2009), pgs. 3150-3156	
/R.G/	38	ROSCA ET AL., "Oxidation of multiwalled carbon nanotubes by nitric acid", 43(15) Carbon (2005), pgs. 3124-3131	
/R.G/	39	ZIEBACZ ET AL., "Crossover regime for diffusion of nanoparticles in polyethylene glycol solutions: influence of depletion layer", Electronic Supp. Mat. (ESI) for Soft Matter, Royal Soc. Chem. (2011), pgs. 1-10	
/R.G/	40	KOVTYUKHOVA ET AL., "Individual Single-Walled Nanotubes and Hydrogels Made by Oxidative Exfoliation of Carbon Nanotube Ropes, 125 J. Amer. Chem. Soc. (2003, pg. 9761	
/R.G/	41	ANDREWS ET AL., "Continuous Production of Aligned Carbon Nanotubes: A Step Closer to Commercial Realization", 303 Chem. Phys. Let. 467 (1999)	
/R.G/	42	MARGETTS ET AL., "Transdermal drug delivery: principles and opoid therapy", 7(5) Oxford Journal, Medicine BJA: CEACCP (2007), pgs. 171-176	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/RONALD GRINSTED/	Date Considered	02/21/2017

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 72 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Gregory L. Porter/	Date (YYYY-MM-DD)	2016-10-07
Name/Print	Gregory L. Porter	Registration Number	40131

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 74 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.G/

Samsung Ex. 1002, Page 75 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468

CONFIRMATION NO. 8330

130577
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

PUBLICATION NOTICE

OC000000089419696

Title:DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

Publication No.US-2017-0050158-A1
Publication Date:02/23/2017

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468

CONFIRMATION NO. 8330

130577
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

POA ACCEPTANCE LETTER

OC000000089344945

Date Mailed: 02/22/2017

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/16/2017.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/mnguyen/

Samsung Ex. 1002, Page 77 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Clive P. Bosnyak		
Serial No.:	15/288,553	Art Unit:	1763
Filed:	October 7, 2016	Examiner:	Ronald Grinstead
For: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBES		Atty Docket No.	MORE-0020CIP2 (262468)

DECLARATION OF DR. NANCY HENDERSON

Background and Qualifications

1. My name is Dr. Nancy Henderson. I am over the age of twenty-one (21), of sound mind, and fully competent to testify.

2. I am currently employed by Molecular Rebar, Inc. as Intellectual Property Manager. I received a Ph.D. in Mechanical Engineering in the year 1996 from the University of Texas at Austin. I have expertise in dispersions and carbon nanotubes based on my education, training, and work experience.

3. I have reviewed patent application Serial Number 15/288,553, the pending claims and the references of (1) US 2007/0259994 to Tour *et al* (hereinafter "Tour") and (2) Bhattacharyya et al., Carbon 2008, Vol. 46, pp. 1037-45 (hereinafter Bhattacharyya).

Tour's Cited Method Does Not Obtain Discrete Multiwall Carbon Nanotubes as Confirmed Experimentally

4. In my view, the claims are not anticipated or obvious over the Tour reference for a number of reasons. As but one reason the method Tour expressly teaches does not provide for making discrete double wall or multiwall carbon nanotubes. I confirmed this by having my staff replicate the procedure that Tour expressly teaches for multiwall nanotubes.

5. Tour states at paragraph [0052], "The above-described solvent-free process is not limited to SWNTs. The solvent-free process also works on MWNTs. See Dyke C A, Tour J M: "Solvent-free functionalization of carbon nanotubes," Journal of the Amencan Chemical Society 2003, 125:1156-1157."

6. To determine whether discrete multiwall carbon nanotubes result from Tour's teachings Tour's cited experimental procedure of Dyke, et al (Dyke, et al, J. Am. Chem. Soc., 2003, 125, 1156) was replicated. Scanning electron microscopy was then used to determine if Tour's cited procedure reduced aggregates of carbon nanotubes into discrete carbon nanotubes.

7. Dyke, et al specifies that a 4-substituted aniline may be employed and therefore 4-t-butylaniline from TCI America was employed. Into a 50 ml round bottom flask, equipped with a stir bar, 7.8 mg of multiwall carbon nanotubes (Flowtube C9000, CNano) was placed. To the multiwall carbon nanotubes, 0.41 ml of 4-t-butylaniline was slowly injected via syringe. This was followed by syringe injection of 0.42 ml of isoamyl nitrite (TCI America). The fluid phase turned from clear to dark yellow within 2 minutes. The flask was immersed into a 60 °C water bath which was temperature controlled via a hot plate/magnetic stirrer. An open air condenser was attached to the flask. The mixture was stirred and heated at 60 °C for 1 hour. During the first 5 minutes the fluid turned from yellow to dark brown.

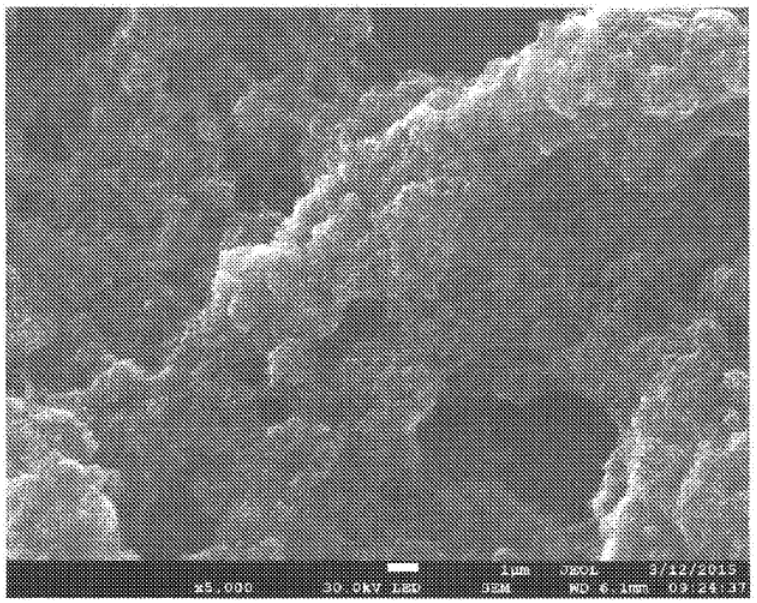
8. After 1 hour, the vessel was allowed to cool at room temperature for 10 min. The procedure specified by Dyke, et al, requires filtration via a PTFE filter. A test of the Millipore 0.1 micron PVDF with DMF showed degradation of the filter material. To avoid loss of sample, a Whatman #2 paper filter was used instead. The multiwall carbon nanotubes were filtered with DMF until no color remained. This required approximately 30 ml of DMF. The carbon nanotubes were then washed on the filter with diethyl ether to remove residual DMF.

Approximately 20 ml of diethyl ether was used. The treated multiwall carbon nanotubes were kept on the filter paper and dried in an air circulating oven for 1 hour at 60 °C.

9. Samples for scanning electron microscopy (SEM) were prepared by adding a small quantity of multiwall carbon nanotubes to isopropyl alcohol and sonicating for 15 seconds in a sonicating water batch. A drop was placed on a silicon wafer chip which was than attached to a SEM stub with graphite glue. Imaging was performed using a Jeol JSM 7100 F. Both untreated and treated carbon nanotubes were examined in this manner.

10. Figure 1 is the SEM micrograph of the untreated multiwall carbon nanotubes. Note that the tubes have the morphology of aggregates of entangled bundles of tubes.

Figure 1. Untreated Carbon Nanotubes (Magnification x 5000)

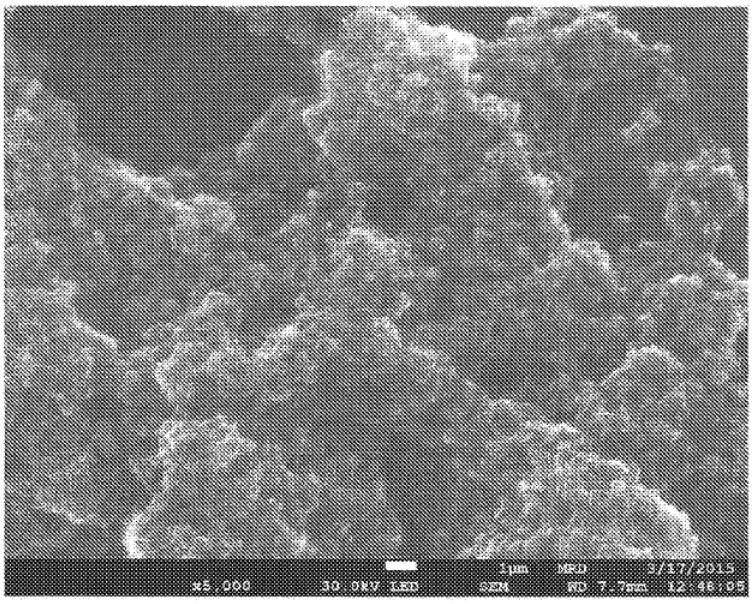


HOU:3762466.1

Samsung Ex. 1002, Page 80 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

11. Figure 2 is the SEM micrograph of the multiwall carbon nanotubes of Figure 1 treated per Tour's cited method of Dyke, et al. After treatment the carbon nanotubes remained as aggregates of entangled bundles and are indistinguishable from the untreated tubes of Figure 1. Therefore, the express method taught by Tour for multiwall carbon nanotubes does not yield discrete multiwall carbon nanotubes and I would expect the same to hold true for double wall nanotubes.

Figure 2. Treated Carbon Nanotubes (Magnification x5000)



Bhattacharyya Does Not Have Discrete Carbon Nanotubes

12. The ordinarily skilled artisan understands that Bhattacharyya simply teaches a dispersion of "prevulcanized natural rubber". (Bhattacharyya, Section 2.2 Preparation of MWCNT/natural rubber composites).

13. Claim 1 requires "discrete carbon nanotubes." The skilled artisan reviewing Figures 1 and 9 of Bhattacharyya referenced in the Office Action would conclude that there is not sufficient information in either Figure 1 or Figure 9 to conclude that Bhattacharyya teaches either "discrete carbon nanotubes" or any specific aspect ratio. Figure 9 is simply a micrograph of a latex film. Figure 1 shows only a few nanotubes at most. Therefore, the skilled artisan reviewing Figure 1 would not have sufficient information to reasonably conclude that Bhattacharyya have discrete carbon nanotubes or a given aspect ratio.

14. I declare under penalty of perjury under the laws of the United States of America that the foregoing statements are true and correct. I further hereby declare that all statements made herein of my own knowledge are true and correct and that any other statements or opinions made herein are believed to be true and correct based on the information that I have received to date.

EXECUTED on this 16th day of February 2017.

Nancy Henderson

Dr. Nancy Henderson

HOU:3762466.1

Samsung Ex. 1002, Page 82 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Acknowledgement Receipt	
EFS ID:	28386740
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	17-FEB-2017
Filing Date:	07-OCT-2016
Time Stamp:	09:58:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Affidavit-traversing rejectns or objectns rule 132	Henderson_Decl.pdf	1919081 7ab43865e376bc933cb52f393f22d9cf68a08e30	no	5
Warnings:					

Samsung Ex. 1002, Page 83 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:	
Total Files Size (in bytes):	1919081

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 84 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15288553
Filing Date	2016-10-07
First Named Inventor	Clive P. Bosnyak
Title	Dispersions Comprising Discrete Carbon Nanotube Fibers
Art Unit	1763
Examiner Name	Ronald Grinsted
Attorney Docket Number	MORE-0020CIP2/262468

SIGNATURE of Applicant or Patent Practitioner

Signature	/Gregory L. Porter/	Date (Optional)	2017-02-16
Name	Gregory L. Porter	Registration Number	40131
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)	Molecular Rebar Design, LLC		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Samsung Ex. 1002, Page 85 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 130577

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Molecular Rebar Design, LLC

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/S. P. Krupp/	Date (Optional)	03-16-2015
Name	Stephen P. Krupp		
Title	Chief Patent Counsel, Molecular Rebar Design, LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Samsung Ex. 1002, Page 86 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/AIA/82C (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

No more than ten (10) patent practitioners total may be appointed as set forth below by name and registration number. This page need not be submitted if appointing the Patent Practitioner(s) associated with a Customer Number (see form PTO/AIA/82B):

Name	Registration Number

Electronic Acknowledgement Receipt	
EFS ID:	28377852
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	16-FEB-2017
Filing Date:	07-OCT-2016
Time Stamp:	14:12:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	POA.pdf	101025 d3fc86d2d837865236 53b11021f239cd043d7273	no	3
Warnings:					

Samsung Ex. 1002, Page 88 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:	
Total Files Size (in bytes):	101025

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 89 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) MRE020CIP2/262468

In re Application of: Clive P. Bosnyak

Application No.: 15288553

Filed: 2016-10-07

For: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

The applicant, Molecular Rebar Design, LLC, owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 9,493,626 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40131

/Gregory L. Porter/	2017-02-16
Signature	Date
Gregory L. Porter	
Typed or printed name	
Attorney of Record	713.220.4621
Title	Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) MRE020CIP2/262468

In re Application of: Clive P. Bosnyak

Application No.: 15288553

Filed: 2016-10-07

For: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

The applicant, Molecular Rebar Design, LLC, owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 9,422,413 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has **all** claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40131

/Gregory L. Porter/ — Signature
2017-02-16 — Date

Gregory L. Porter — Typed or printed name

Attorney of Record — Title
713.220.4621 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) MRE020CIP2/262468

In re Application of: Clive P. Bosnyak

Application No.: 15288553

Filed: 2016-10-07

For: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

The applicant, Molecular Rebar Design, LLC, owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 9353240 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40131

/Gregory L. Porter/ — Signature
2017-02-16 — Date

Gregory L. Porter — Typed or printed name

Attorney of Record — Title
713.220.4621 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Samsung Ex. 1002, Page 92 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) MRE020CIP2/262468

In re Application of: Clive P. Bosnyak

Application No.: 15288553

Filed: 2016-10-07

For: DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

The applicant, Molecular Rebar Design, LLC, owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 9,212,273 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the **full** statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 40131

/Gregory L. Porter/ — Signature
2017-02-16 — Date

Gregory L. Porter — Typed or printed name

Attorney of Record — Title
713.220.4621 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal					
Application Number:	15288553				
Filing Date:	07-Oct-2016				
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS				
First Named Inventor/Applicant Name:	Clive P. Bosnyak				
Filer:	Gregory L. Porter/Jeanne Dunn				
Attorney Docket Number:	MORE-0020CIP2/262468				
Filed as Small Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Samsung Ex. 1002, Page 94 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	2814	4	160	640
		Total in USD ($)		**640**

Samsung Ex. 1002, Page 95 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Acknowledgement Receipt	
EFS ID:	28378348
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	16-FEB-2017
Filing Date:	07-OCT-2016
Time Stamp:	14:32:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$640
RAM confirmation Number	021717INTEFSW00000869500897
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

Samsung Ex. 1002, Page 96 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Statutory disclaimers per MPEP 1490	Terminal_Disclaimers.pdf	110001 b07915991aee338fe763669a48eeae1bb44fe93d	no	4
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30535 433a7b8922ee16264a5ef122eac96604f91c92e6	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	140536		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 97 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

EFS Web 2.1.17

Samsung Ex. 1002, Page 98 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	1	Fourth Office Action (Chinese Appl. No. 201180065089.4), dated September 26, 2016	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Gregory L. Porter/	Date (YYYY-MM-DD)	2017-02-16
Name/Print	Gregory L. Porter	Registration Number	40131

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal					
Application Number:	15288553				
Filing Date:	07-Oct-2016				
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS				
First Named Inventor/Applicant Name:	Clive P. Bosnyak				
Filer:	Gregory L. Porter/Jeanne Dunn				
Attorney Docket Number:	MORE-0020CIP2/262468				
Filed as Small Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Samsung Ex. 1002, Page 102 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	90	90
		Total in USD ($)		**90**

Samsung Ex. 1002, Page 103 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Acknowledgement Receipt	
EFS ID:	28379420
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	16-FEB-2017
Filing Date:	07-OCT-2016
Time Stamp:	15:11:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$90
RAM confirmation Number	021717INTEFSW00001739500897
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

Samsung Ex. 1002, Page 104 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SupplDS_02162017.pdf	527929 d9ed969db0417c755d987098ac22c04c7976fa78	no	4
Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Non Patent Literature	CN_OA.pdf	348859 992a3202c72501bb67747bab2dcf323757e0955a	no	6
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30540 240ba9ccb6e098461a4247415bc15eaaebd14253	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	907328		

Samsung Ex. 1002, Page 105 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 106 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of:	Clive P. Bosnyzk	**Confirmation No.**	8330
Serial No.:	15/288,553	**Art Unit:**	
Filing Date:	October 7, 2016	**Examiner:**	
Title:	*Dispersion Comprising Discrete Carbon Nanotube Fibers*	**Atty. Dkt. No.:**	MRE020CIP2 /262468

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Before receiving an Office Action on the merits, Applicant wishes to amend the claims as follows:

Amendments to the Claims begin on page 2.

Remarks begin on page 5.

Samsung Ex. 1002, Page 107 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

AMENDMENT TO THE CLAIMS

The following claims should replace all prior versions of the claims:

1. (Original) 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 up to about 30% by weight based on the total weight of the dispersion.
2. (Original) The dispersion of claim 1 wherein at least 70 percent by weight of the nanotubes are discrete.
3. (Original) The dispersion of claim 1 in the form of free flowing particles.
4. (Original) The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes comprise an oxidation species selected from carboxylic acid or a derivative carbonyl containing species wherein the derivative carbonyl species is selected from ketones, quaternary amines, amides, esters, acyl halogens, and monovalent metal salts..
5. (Original) The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes comprise an oxidation species selected from hydroxyl or derived from hydroxyl containing species.
6. (Original) The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes are present in the range of 15% to about 25% by weight based on the total weight of the dispersion.
7. (Original) The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes are present in the range of 18% to about 22% by weight based on the total weight of the dispersion.

Samsung Ex. 1002, Page 108 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

8. (Original) The dispersion of claim 1, wherein the additive is selected from the group consisting of dicarboxylic/tricarboxylic esters, timellitates, adipates, sebacates, maleates, glycols and polyethers, polymeric plasticizers, bio-based plasticizers, and mixtures thereof.

9. (Original) The dispersion of claim 1, wherein the additives is a process oil.

10. (Original) The dispersion of claim 9, where in the process oil is selected from the group consisting of naphthenic oils, paraffin oils, paraben oils, aromatic oils, vegetable oils, seed oils, silicones, and mixtures thereof.

11. (Original) The dispersion of claim 1, wherein the additive is a solvent.

12. (Original) The dispersion of claim 11, where in the solvent is selected from the group consisting of substituted or unsubstituted, halogenated or nonhalogenated hydrocarbons.

13. (Original) The dispersion of claim 1, wherein the additive comprises at least one reactive species capable of creating a thermoset polymer.

14. (Original) The dispersion of claim 13, wherein the thermoset polymer is selected from epoxy, polyurethane or silicone.

15. (Original) The dispersion of claim 1, wherein the additive comprises natural wax, synthetic wax, or mixtures thereof.

16. (Original) The dispersion of claim 15 further comprising a fluoroelastomer.

17. (Original) The dispersion of claim 1 which further comprises at least one filler.

18. (Original) The dispersion of claim 17, wherein the filler has at least one dimension less than about 20 microns.

Samsung Ex. 1002, Page 109 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

19. (Original) The dispersion of claim 18, wherein the filler is selected from silicon, lead, lead derivatives, carbon black, graphite, graphene, graphene oxides, paramagnetic particles and mixtures thereof.

20. (Original) A dispersion comprising a plurality of oxidized, discrete carbon nanotubes and at least one wax additive and at least one fluoroelastomer, wherein the discrete carbon nanotubes have an aspect ratio of 25 to 500, are multiwall, and are present in the range of up to about 30% by weight based on the total weight of the dispersion.

21. (New) The dispersion of Claim 15 which further comprises a crosslinking agent.

22. (New) The dispersion of Claim 15 wherein the additive comprises natural wax wherein the natural wax is plant derived.

23. (New) The dispersion of Claim 22 which further comprises a crosslinking agent.

Samsung Ex. 1002, Page 110 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

REMARKS

Claims 1-20 were pending. Claims 21 – 23 were added. Support for new Claim 21 may be found in, for example, paragraph **[0016]**; support for new Claim 22 may be found in, for example, paragraph **[0033]**; and support for new Claim 23 may be found in, for example, paragraphs **[0016]** and **[0033]**. No new matter has been added.

Applicant does not believe a fee is necessary for this submission. However, if a fee is required, the Commissioner is hereby authorized to charge any required fee to the Andrews Kurth LLP Deposit Account (referencing matter MRE020CIP2/262468). Any questions regarding this application should be directed to the attorney below.

Dated: February 8, 2017

Respectfully submitted,

/Gregory L. Porter/
Gregory L. Porter
Regis. No. 40131
ANDREWS KURTH KENYON LLP
600 Travis St.
Suite 4200
Houston, Texas 77002
Tel: (713) 220-4621
Fax: (713) 238-4285
Pat-tmk@andrewskurth.com

ATTORNEYS FOR APPLICANT

Samsung Ex. 1002, Page 111 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Acknowledgement Receipt	
EFS ID:	28296580
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	08-FEB-2017
Filing Date:	07-OCT-2016
Time Stamp:	11:38:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Preliminary Amendment	PrelimAmendment.pdf	46070 bde87e5929bf25fd515a4a6260f391a62aac82ba	no	5
Warnings:					

Samsung Ex. 1002, Page 112 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:	
Total Files Size (in bytes):	46070

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 113 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/288,553	Filing Date 10/07/2016	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	02/08/2017	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 23	Minus	** 20	= 3	X $40 =	120
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**120**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
DAWN BREWER

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 03/17/2017

DBREWER SALE #00000001 Mailroom Dt: 02/08/2017 500897 15288553
01 FC : 2202 120.00 DA

Samsung Ex. 1002, Page 115 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ☒ United States application or PCT international application number 15/288,553 filed on 2016-10-07.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Kurt W. Swogger Date (Optional): 12/14/2016

Signature: Kurt W. Swogger

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Samsung Ex. 1002, Page 116 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Samsung Ex. 1002, Page 117 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 15/288,553 filed on 2016-10-07.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Clive P. Bosnyak Date (Optional): _____

Signature: Clive P Bosnyak

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Samsung Ex. 1002, Page 118 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Samsung Ex. 1002, Page 119 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Acknowledgement Receipt	
EFS ID:	27978725
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	05-JAN-2017
Filing Date:	07-OCT-2016
Time Stamp:	13:34:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	Declarations.pdf	3761723 86cfce2e482dee163c87a1895cd68e9b6efd12c0	no	4
Warnings:					

Samsung Ex. 1002, Page 120 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:	
Total Files Size (in bytes):	3761723

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 121 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/288,553	10/07/2016	1763	800	MORE-0020CIP2/262468	20	2

CONFIRMATION NO. 8330

CORRECTED FILING RECEIPT

130577
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

OC000000087211527

Date Mailed: 11/16/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Clive P. Bosnyak, Dripping Springs, TX;
Kurt W. Swogger, Austin, TX;

Applicant(s)

MOLECULAR REBAR DESIGN, LLC, Austin, TX

Assignment For Published Patent Application

MOLECULAR REBAR DESIGN, LLC, Austin, TX

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CIP of 15/225,215 08/01/2016 PAT 9493626
which is a CIP of 15/166,931 05/27/2016 PAT 9422413
which is a CON of 14/924,246 10/27/2015 PAT 9353240
which is a CON of 13/993,206 06/11/2013 PAT 9212273
which is a 371 of PCT/EP2011/072427 12/12/2011
which claims benefit of 61/423,033 12/14/2010

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/19/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/288,553**

Projected Publication Date: 02/23/2017

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **
Title

DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

Preliminary Class

524

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Samsung Ex. 1002, Page 125 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	101322197	CN	A	2008-12-10	Kojima Press Kogyo KK		
	2	101296991	CN	A	2008-10-29	Arkema France		
	3	101054453	CN	A	2007-10-17	Goodyear Tire & Rubber		

EFS Web 2.1.17

Samsung Ex. 1002, Page 126 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	4	2003002456	WO	A2	2003-01-09	Institut National Polytechnique de Toulouse		

If you wish to add additional Foreign Patent Document citation information please click the Add button [Add]

NON-PATENT LITERATURE DOCUMENTS [Remove]

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Fourth Office Action (Chinese Appl. No. 201180065089.4), dated September 26, 2016	

If you wish to add additional non-patent literature document citation information please click the Add button [Add]

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15288553
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Gregory L. Porter/	Date (YYYY-MM-DD)	2016-11-10
Name/Print	Gregory L. Porter	Registration Number	40131

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

EFS Web 2.1.17

Samsung Ex. 1002, Page 128 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	27476403
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	10-NOV-2016
Filing Date:	07-OCT-2016
Time Stamp:	15:53:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SuppIDS.pdf	528156 6dbf9f8604d5adc3bca02d6ed7ddc84a78d9bf3c	no	4
Warnings:					

Samsung Ex. 1002, Page 130 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Foreign Reference	CN_101322197_A.pdf	1740471 c6016aa39586e25d6144b229a682984133a b6a43	no	34
Warnings:					
Information:					
3	Foreign Reference	CN_101296991_A.pdf	818541 3455a2ba3ce313d8e05038bbe7066a9716e 92200	no	14
Warnings:					
Information:					
4	Foreign Reference	CN_101054453_A.pdf	994434 64e5d90cf8430a1f25477077ab54e0f9ffff09 91	no	19
Warnings:					
Information:					
5	Foreign Reference	WO_2003_002456.pdf	1722306 21a07865e5b2f2f5d3294f42536c4135b9f8 15f	no	38
Warnings:					
Information:					
		Total Files Size (in bytes):	5803908		

Samsung Ex. 1002, Page 131 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 132 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468

CONFIRMATION NO. 8330

130577
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

IMPROPER CFR REQUEST

OC000000086611733

Date Mailed: 10/21/2016

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Continuity, Priority Claims, Petitions, and Non-Publication Requests

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

Improper Benefit Claim(s) to Prior-Filed Nonprovisional Application(s)

The benefit claim(s) to prior-filed nonprovisional application(s) is improper because there is no specific reference for each prior-filed application that includes: (1) the identification of the prior-filed application by application number, or international application number and international filing date; and (2) a clear indication of the relationship (i.e., continuation, divisional, or continuation-in-part) of the nonprovisional applications. Applicant must submit a corrected application data sheet (ADS) to include a specific reference. Applicant should review each benefit claim submitted and, if appropriate, provide the proper reference to the prior-filed application(s) as required by 37 CFR 1.78. A proper relationship includes an identification of each nonprovisional application as a continuation, divisional, or continuation-in-part application of the immediate prior-filed nonprovisional application for which a benefit is claimed under 37 CFR 1.78 in order to establish copendency throughout the entire chain of prior-filed applications. The specific reference must be included in the domestic benefit information section of an application data sheet (37 CFR 1.76).

Timeliness: The required reference for each benefit claim must be filed during the pendency of the instant application and within the later of: (1) four months from the actual filing date of the instant application, or the national stage commencement date if the instant application is a national stage application under 35 U.S.C. 371; or (2) sixteen months from the filing date of the prior-filed application. Failure to timely file the required reference is considered a waiver of any benefit claim, unless a grantable petition to accept an unintentionally delayed claim under 37 CFR 1.78(a), the surcharge set forth in 37 CFR 1.17(t), and the required reference are filed. See 37 CFR 1.78(a).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

Samsung Ex. 1002, Page 133 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

/Inguyen/

Samsung Ex. 1002, Page 134 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/288,553	10/07/2016		800	MORE-0020CIP2/262468	20	2

CONFIRMATION NO. 8330

130577
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

FILING RECEIPT

OC000000086805746

Date Mailed: 10/21/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)
Clive P. Bosnyak, Dripping Springs, TX;
Kurt W. Swogger, Austin, TX;

Applicant(s)
MOLECULAR REBAR DESIGN, LLC, Austin, TX

Assignment For Published Patent Application
MOLECULAR REBAR DESIGN, LLC, Austin, TX

Power of Attorney: None

Domestic Priority data as claimed by applicant
This application is a CIP of 15/225,215 08/01/2016

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/19/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/288,553**

Projected Publication Date: 02/01/2018

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number
15/288,553

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)	OR	RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

Samsung Ex. 1002, Page 138 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/288,553	10/07/2016	Clive P. Bosnyak	MORE-0020CIP2/262468

CONFIRMATION NO. 8330

130577
ANDREWS KURTH KENYON LLP
600 Travis Street
Suite 4200
Houston, TX 77002

INFORMAL NOTICE

OC000000086605747

Date Mailed: 10/21/2016

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Clive P. Bosnyak
  Kurt W. Swogger

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/mhaile/

Samsung Ex. 1002, Page 139 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

CORRECTED ADS FORM

Application Number	15288553
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number		
Name		
Residence Information		
Residency		
City		
State		
Country of Residence		
Mailing Address of Inventor		
Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Corrected ADS 1.0

Samsung Ex. 1002, Page 140 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

Application Information

	Data of Record	Updated Data
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	
Attorney Docket Number	MORE-0020CIP2/262468	
Entity Type	Small	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S. C. 119(e) or 120, and 37 CFR 1.78(a).

		Data of Record	Updated Data
	Prior Application Status	pending	
	Application Number	15288553	
	Continuity Type	CIP	
	Prior Application Number	15225215	
	Filing Date (YYYY-MM-DD)	2016-08-01	
	Patent Number		
	Issue Date (YYYY-MM-DD)	0001-01-01	

Corrected ADS 1.0

Samsung Ex. 1002, Page 141 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

		Data of Record	Updated Data
	Prior Application Status		patented
	Application Number		15225215
	Continuity Type		CIP
	Prior Application Number		15166931
	Filing Date (YYYY-MM-DD)		2016-05-27
	Patent Number		9422413
	Issue Date (YYYY-MM-DD)		2016-08-23

		Data of Record	Updated Data
	Prior Application Status		patented
	Application Number		15166931
	Continuity Type		CON
	Prior Application Number		14924246
	Filing Date (YYYY-MM-DD)		2015-10-27
	Patent Number		9353240
	Issue Date (YYYY-MM-DD)		2016-05-31

		Data of Record	Updated Data
	Prior Application Status		patented
	Application Number		14924246
	Continuity Type		CON
	Prior Application Number		13993206
	Filing Date (YYYY-MM-DD)		2013-06-11
	Patent Number		9212273
	Issue Date (YYYY-MM-DD)		2015-12-15

Corrected ADS 1.0

Samsung Ex. 1002, Page 142 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

		Data of Record	Updated Data
	Prior Application Status		expired
	Application Number		13993206
	Continuity Type		NST
	Prior Application Number		PCT/EP2011/072427
	Filing Date (YYYY-MM-DD)		2011-12-12
	Patent Number		
	Issue Date (YYYY-MM-DD)		

		Data of Record	Updated Data
	Prior Application Status		expired
	Application Number		PCT/EP2011/072427
	Continuity Type		PRO
	Prior Application Number		61423033
	Filing Date (YYYY-MM-DD)		2010-12-14
	Patent Number		
	Issue Date (YYYY-MM-DD)		

Foreign Priority Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

		Data of Record	Updated Data
	Application Number		
	Country		
	Filing Date		
	Access Code		

Applicant Information

****If no data is shown, no data has been corrected****
Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

	Data of Record	Updated Data
Applicant Type		
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is		
Name of the Deceased or Legally Incapacitated Inventor		
Applicant is an Organization		
Name		
Organization Name		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		

Corrected ADS 1.0

Samsung Ex. 1002, Page 144 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Email Address		

Assignee Information including Non-Applicant Assignee Information

If no data is shown, no data has been corrected
Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		
Organization Name		
Mailing Address		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.
Corrected ADS 1.0

Samsung Ex. 1002, Page 145 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Signature	/Gregory L. Porter/	Registration Number	40131
First Name	Gregory	Last Name	Porter

Electronic Acknowledgement Receipt	
EFS ID:	27291708
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	21-OCT-2016
Filing Date:	07-OCT-2016
Time Stamp:	18:02:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet to update/ correct info	CorrectedADS.pdf	94103 f3fdc8dc23afc9a60f6ed7ee942929823ebfb e78	no	7
Warnings:					

Samsung Ex. 1002, Page 147 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:	
Total Files Size (in bytes):	94103

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 148 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBES

CROSS-REFERENCES

[0001] This application is a continuation-in-part application of U.S. Serial No. 15/225,215 filed August 1, 2016 and allowed September 12, 2016 which was a continuation-in-part application of U.S. Serial No. 15/166,931 filed May 27, 2016 and issued as U.S. Patent No. 9,422,413 which was a continuation of U.S. Serial No. 14/924,246, filed October 27, 2015 and issued as U.S. Patent No. 9,353,240, which is a continuation of U.S. Serial No. 13/993,206, filed June 11, 2013 and issued as U.S. Patent No. 9,212,273, which claims priority to PCT/EP2011/072427, filed December 12, 2011, which claims benefit of U.S. provisional application 61/423,033, filed December 14, 2010. This application is also related to U.S. Serial Nos. 62/319,599; 14/585,730; 14/628,248; and 14/963,845.

FIELD OF INVENTION

[0002] The present invention is directed to novel compositions and methods for producing elastomer composite blends with discrete carbon nanotubes.

BACKGROUND OF THE INVENTION

[0003] Carbon nanotubes can be classified by the number of walls in the tube, single-wall, double wall and multiwall. Each wall of a carbon nanotube can be further classified into chiral or non-chiral forms. Carbon nanotubes are currently manufactured as agglomerated nanotube balls or bundles. Use of carbon nanotubes as a reinforcing agent in polymer composites is an area in which carbon nanotubes are predicted to have significant utility. However, utilization of carbon nanotubes in these applications has been hampered due to the general inability to reliably produce individualized carbon nanotubes. To reach the full potential of performance enhancement of carbon nanotubes as composites in polymers the aspect ratio, that is length to diameter ratio, should be substantially greater than 40. The maximum aspect ratio for a given tube length is reached when each tube is fully separated from another. A bundle of carbon nanotubes, for example, has an effective aspect ratio in composites of the average length of the bundle divided by the bundle diameter.

[0004] Various methods have been developed to debundle or disentangle carbon nanotubes

Samsung Ex. 1002, Page 149 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

in solution. For example, carbon nanotubes may be shortened extensively by aggressive oxidative means and then dispersed as individual nanotubes in dilute solution. These tubes have low aspect ratios not suitable for high strength composite materials. Carbon nanotubes may also be dispersed in very dilute solution as individuals by sonication in the presence of a surfactant. Illustrative surfactants used for dispersing carbon nanotubes in aqueous solution include, for example, sodium dodecyl sulfate, or cetyltrimethyl ammonium bromide. In some instances, solutions of individualized carbon nanotubes may be prepared from polymer-wrapped carbon nanotubes. Individualized single-wall carbon nanotube solutions have also been prepared in very dilute solutions using polysaccharides, polypeptides, water-soluble polymers, nucleic acids, DNA, polynucleotides, polyimides, and polyvinylpyrrolidone. The dilution ranges are often in the mg/liter ranges and not suitable for commercial usage.

SUMMARY OF THE INVENTION

[0005] The present invention relates to a composition comprising a plurality of discrete carbon nanotube fibers having an aspect ratio of from about 25 to about 500, and at least one natural or synthetic elastomer, and optionally at least one filler. The composition can have carbon nanotube fibers with an oxidation level of from about 3 weight percent to about 15 weight percent, or from about 0.5 weight percent up to about 4, or up to about 3, or up to 2 weight percent based on the total weight of discrete carbon nanotubes. The carbon nanotube fibers comprise preferably of about 1 weight percent to about 30 weight percent of the composition and the composition is in the form of free flowing particles or a bale. The composition is further comprising of at least one surfactant or dispersing aid. The composition can comprise the natural or synthetic elastomer selected from the group consisting of, but not limited to, natural rubbers, polyisobutylene, polybutadiene and styrene-butadiene rubber, butyl rubber, polyisoprene, styrene-isoprene rubbers, styrene-isoprene rubbers, ethylene propylene diene rubbers, silicones, polyurethanes, polyester-polyethers, hydrogenated and non-hydrogenated nitrile rubbers, halogen modified elastomers, flouro-elastomers, and combinations thereof. The composition contains fibers that are not entangled as a mass and are uniformly dispersed in the elastomer.

[0006] In another embodiment, the invention is a process to form a carbon nanotube fiber/elastomer composite comprising the steps of: (a) selecting discrete carbon nanotube fibers having an aspect ratio of from 25 to 500, (b) blending the fibers with a liquid to form a liquid/fiber

Samsung Ex. 1002, Page 150 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

mixture, (c) optionally adjusting the pH to a desired level, (d) agitating the mixture to a degree sufficient to disperse the fibers to form a dispersed fiber mixture, (e) optionally combining the dispersed fiber mixture with at least one surfactant, (f) combining the dispersed fiber mixture with at least one elastomer at a temperature sufficient to incorporate the dispersed fiber mixture to form a carbon nanotube fiber/elastomer composite/liquid mixture, (g) isolating the resulting carbon nanotube fiber/elastomer composite from the liquid. The carbon nanotube fibers comprise from about 1 to about 30 weight percent of the fiber/elastomer composite of (g). The liquid is aqueous based. The agitating step (d) comprises sonication. In this embodiment, the elastomer is selected from, but not limited to, the natural or synthetic elastomer selected from the group consisting of, but not limited to, natural rubbers, polyisobutylene, polybutadiene and styrene-butadiene rubber, butyl rubber, polyisoprene, styrene-isoprene rubbers, styrene-isoprene rubbers, ethylene propylene diene rubbers, silicones, polyurethanes, polyester-polyethers, hydrogenated and non-hydrogenated nitrile rubbers, halogen modified elastomers, fluoro-elastomers, and combinations thereof. The composition is further comprising sufficient natural or synthetic elastomer to form a formulation comprising from about 0.1 to about 25 weight percent carbon nanotube fibers.

[0007] In another embodiment, the invention is a formulation in the form of a molded or fabricated article, such as a tire, a hose, a belt, a seal and a tank track pad, wheel, bushings or backer plate components.

[0008] In another embodiment, the invention is a nanotubes/elastomer composite further comprising of filler or fillers such as carbon black and/or silica, and wherein a molded film comprising the composition has a tensile modulus at 5 percent strain of at least about 12 MPa. The composition comprising of carbon black, and wherein a molded film comprising the composition has a tear property of at least about 0.8 MPa.

[0009] In yet another embodiment of the invention is a carbon nanotube/elastomer composition further comprising of filler, and where in a molded film comprising the composition has a tensile modulus at 5% strain of at least 8 MPa.

[0010] In yet another embodiment of the invention is a carbon nanotube fiber/elastomer composite, wherein the carbon nanotube fibers are discrete fibers and comprise from about 10 to about 20 weight percent fibers and wherein the elastomer comprises a styrene copolymer rubber.

Samsung Ex. 1002, Page 151 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

[0011] In still another embodiment of the invention is a method for obtaining individually dispersed carbon nanotubes in rubbers and/or elastomers comprising (a) forming a solution of exfoliated carbon nanotubes at pH greater than or equal to about 7, (b) adding the solution to a rubber or elastomer latex to form a mixture at pH greater than or equal to about 7, (c) coagulating the mixture to form a concentrate, (d) optionally incorporating other fillers into the concentrate, and (e) melt-mixing said concentrate into rubbers and/or elastomers to form elastomeric composites. In this embodiment the carbon nanotubes comprise less than or equal to about 2 percent by weight of the solution. A further embodiment is that the coagulation step comprises mixing with acetone. In another embodiment, the coagulation step comprises drying the mixture. In yet another embodiment the coagulation step comprises adding at least one acid to the mixture at pH less than or equal to about 4.5 together with at least one monovalent inorganic salt. In another embodiment, the mixture has divalent or multivalent metal ion content of less than about 20,000 parts per million, preferably less than about 10,000 parts per million and most preferably less than about 1,000 parts per million.

[0012] Another aspect of this invention are coagulating methods/agents are those that enable the carbon nanotube to be non-ordered on the surface of the elastomer latex particle and together are substantially removable from the liquid mixture. A further aspect of this invention is a method to reduce or remove surfactants in the latex/carbon nanotube fiber composite system organic molecules of high water solubility such as acetone, denatured alcohol, ethyl alcohol, methanol, acetic acid, tetrahydrofuran. Another aspect of this invention is to select coagulating methods that retain surfactant in the latex/carbon nanotube fiber material which includes coagulating methods such as sulfuric acid and inorganic monovalent element salt mixtures, acetic acid and monovalent element salt mixtures, formic acid and inorganic monovalent element salt mixtures, air drying, air spraying, steam stripping and high speed mechanical agitation.

[0013] Yet another embodiment of the invention is an individually dispersed carbon nanotube/rubber or carbon nanotube/elastomer concentrate comprising free flowing particles or a bale. A further aspect of this invention is an individually dispersed carbon nanotube/rubber or carbon nanotube/ elastomer concentrate comprising free flowing particles or a bale wherein the concentrate contains a concentration of less than 20,000 parts per million of divalent or multivalent metal salt.

Samsung Ex. 1002, Page 152 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

[0014] Another embodiment of the invention is an individually dispersed carbon nanotube/rubber or carbon nanotube/elastomer concentrate comprising free flowing particles or a bale wherein the concentrate contains agglomerations of carbon nanotubes that comprise less than 1 percent by weight of the concentrate and wherein the carbon nanotube agglomerates comprise more than 10 microns in diameter. An embodiment of the invention is a composite comprising the concentrate.

[0015] In another embodiment, the elastomer nanotube fiber composition, particularly materials made from elastomers commonly called either natural or synthetic rubber or rubber compounds (with the addition of fillers such as carbon or silicon) includes wherein the fiber surface modifier or surfactant is chemically or physically (or both) bonded to the elastomer and/or the isolated fibers or the filler in the compounds.

[0016] In another embodiment, the material-nanotube fiber composition includes wherein the fiber surface modifier or surfactant is chemically bonded to the material and/or fiber. As an example, oleylamine (1-amino-9-octadecene) can be reacted with carbon nanotubes containing carboxylic groups to give the amide. On addition of the amide modified carbon nanotube fiber to a vinyl containing polymer material such as styrene-butadiene followed by addition of crosslinking agents comprising such as peroxides or sulfur, the vinyl containing polymer can be covalently bonded to the amide functionality of the carbon nanotube.

[0017] In one embodiment of this invention a method is disclosed in which the elastomer/carbon nanotube concentrate is dispersed first into another elastomer or thermoplastic to a uniform consistency before addition of other additives such as other fillers and additives, including carbon black, silica, graphene, oils and antioxidants.

[0018] Another embodiment of this invention is a method of mixing carbon nanotubes and at least one first elastomer, wherein a master batch of carbon nanotubes is first melt mixed with the elastomer, either the same or different from the first elastomer, at a temperature from about 20 to about 200° C, subsequently then additional elastomers, fillers, and additives are added and melt mixed further, to produce a composition suitable for vulcanization. A solvent can be added to facilitate mixing which can be removed after the at least one first elastomer, wherein a master batch of carbon nanotubes is first mixed with the elastomer, or after all ingredient are added and

Samsung Ex. 1002, Page 153 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

mixed.

[0019] The exfoliated carbon nanotube fibers of this invention impart significant strength and stiffness to the materials. These new elastomer nanotube filler materials can improve the frictional, adhesive, cohesive, noise and vibration, rolling resistance, tear, wear, fatigue and crack resistance, hysteresis, large strain effects (Mullins effect), small strain effects (Payne effect) and oscillation or frequency properties and swelling resistance to oil of the elastomers and elastomer compounds. This change in properties will be beneficial for applications such as tires or other fabricated rubber or rubber compounded parts.

[0020] For a more complete understanding of the present disclosure, and the advantages thereof, reference is now made to the following descriptions describing specific embodiments of the disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0021] In the following description, certain details are set forth such as specific quantities, sizes, etc., so as to provide a thorough understanding of the present embodiments disclosed herein. However, it will be evident to those of ordinary skill in the art that the present disclosure may be practiced without such specific details. In many cases, details concerning such considerations and the like have been omitted inasmuch as such details are not necessary to obtain a complete understanding of the present disclosure and are within the skills of persons of ordinary skill in the relevant art.

[0022] While most of the terms used herein will be recognizable to those of ordinary skill in the art, it should be understood, however, that when not explicitly defined, terms should be interpreted as adopting a meaning presently accepted by those of ordinary skill in the art. In cases where the construction of a term would render it meaningless or essentially meaningless, the definition should be taken from Webster's Dictionary, 3rd Edition, 2009. Definitions and/or interpretations should not be incorporated from other patent applications, patents, or publications, related or not, unless specifically stated in this specification or if the incorporation is necessary for maintaining validity.

[0023] Functionalized carbon nanotubes of the present disclosure generally refer to the

Samsung Ex. 1002, Page 154 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

chemical modification of any of the carbon nanotube types described hereinabove. Such modifications can involve the nanotube ends, sidewalls, or both. Chemical modifications may include, but are not limited to covalent bonding, ionic bonding, chemisorption, intercalation, surfactant interactions, polymer wrapping, cutting, solvation, and combinations thereof. In some embodiments, the carbon nanotubes may be functionalized before, during and after being exfoliated.

[0024] In various embodiments, a plurality of carbon nanotubes is disclosed comprising single wall, double wall or multi wall carbon nanotube fibers having an aspect ratio of from about 25 to about 500, preferably from about 60 to about 200, and a oxidation level of from about 3 weight percent to about 15 weight percent, preferably from about 5 weight percent to about 10 weight percent. The oxidation level is defined as the amount by weight of oxygenated species covalently bound to the carbon nanotube. The thermogravimetric method for the determination of the percent weight of oxygenated species on the carbon nanotube involves taking about 5 mg of the dried oxidized carbon nanotube and heating at 5 °C/minute from room temperature to 1000 degrees centigrade in a dry nitrogen atmosphere. The percentage weight loss from 200 to 600 degrees centigrade is taken as the percent weight loss of oxygenated species. The oxygenated species can also be quantified using fourier transform infra-red spectroscopy, FTIR, particularly in the wavelength range 1730-1680 cm^{-1}.

[0025] The carbon nanotube fibers can have oxidation species comprising of carboxylic acid or derivative carbonyl containing species and are essentially discrete individual fibers, not entangled as a mass. The derivative carbonyl species can include ketones, quaternary amines, amides, esters, acyl halogens, monovalent metal salts and the like. Alternatively or in addition, the carbon nanotubes may comprise an oxidation species selected from hydroxyl or derived from hydroxyl containing species.

[0026] As-made carbon nanotubes using metal catalysts such as iron, aluminum or cobalt can retain a significant amount of the catalyst associated or entrapped within the carbon nanotube, as much as five weight percent or more. These residual metals can be deleterious in such applications as electronic devices because of enhanced corrosion or can interfere with the vulcanization process in curing elastomer composites. Furthermore, these divalent or multivalent metal ions can associate with carboxylic acid groups on the carbon nanotube and interfere with the

Samsung Ex. 1002, Page 155 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

discretization of the carbon nanotubes in subsequent dispersion processes. In other embodiments, the oxidized fibers comprise a residual metal concentration of less than about 10000 parts per million, ppm, and preferably less than about 1000 parts per million. The metals can be conveniently determined using energy dispersive X-ray, EDX.

[0027] In another embodiment, a mixture of master batches using different rubbers added to blends of different rubbers used in the rubber compound such that each rubber has a master batch that is compatible so that the individually dispersed nanotubes are distributed whether uniformly or non-uniformly in each rubber domain. This is sometimes necessary so that blends of rubbers used in the rubber compound will have carbon nanotubes in each rubber component.

[0028] An illustrative process for producing discrete oxidized carbon nanotubes follows: 3 liters of sulfuric acid, 97 percent sulfuric acid and 3 percent water, and 1 liter of concentrated nitric acid containing 70 percent nitric acid and 3 percent water, are added into a 10 liter temperature controlled reaction vessel fitted with a sonicator and stirrer. 40 grams of non-discrete carbon nanotubes, grade Flowtube 9000 from CNano corporation, are loaded into the reactor vessel while stirring the acid mixture and the temperature maintained at 30°C. The sonicator power is set at 130-150 watts and the reaction is continued for three hours. After 3 hours the viscous solution is transferred to a filter with a 5 micron filter mesh and much of the acid mixture removed by filtering using a 100psi pressure. The filter cake is washed one times with four liters of deionized water followed by one wash of four liters of an ammonium hydroxide solution at pH greater than 9 and then two more washes with four liters of deionized water. The resultant pH of the final wash is 4.5. A small sample of the filter cake is dried in vacuum at 100°C for four hours and a thermogravimetric analysis taken as described previously. The amount of oxidized species on the fiber is 8 percent weight and the average aspect ratio as determined by scanning electron microscopy to be 60.

[0029] The discrete oxidized carbon nanotubes (CNT) in wet form are added to water to form a concentration by weight of 1 percent and the pH is adjusted to 9 using ammonium hydroxide. Sodium dodecylbenzene sulfonic acid and is added at a concentration 1.25 times the mass of oxidized carbon nanotubes. The solution is sonicated while stirring until the CNT are fully dispersed in the solution. Full dispersion of individual tubes is defined when the UV absorption at 500 nm is above 1.2 absorption units for a concentration of 2.5 $x10^{-5}$ g CNT /ml.

Samsung Ex. 1002, Page 156 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Latex SBR LPF 5356 (Goodyear Rubber Company) with a solids SBR concentration of 70.2% (by weight) was added to the CNT solution such that the solids ratio is 10 parts CNT for 90 parts SBR by weight.

[0030] Sulfuric acid is then added sufficient to bring the pH to 2 and sodium chloride added at a ratio of 50 g/liter of fluid while stirring. Stirring continues for 10 minutes then the coagulant is removed by filtering. The filtrate is a clear liquid. The coagulant is dried in a vacuum oven at 40 °C overnight.

Preparation of aqueous dispersions comprising additives according to the present invention

[0031] As described above and below, various additives may be employed in the aqueous dispersions of discrete, multi-wall oxidized carbon nanotubes. If desired, the carbon nanotubes may be open on at least one or both ends. In this manner at least a portion of the additives that are appropriate in size may be contained in the interior of the discrete multi-wall carbon nanotubes. Typically, the average diameter of the multi-wall nanotube opening is larger than the hydrodynamic radius of the additive molecules to be contained within the interior of the discrete, multi-wall oxidized carbon nanotubes. Such average diameters of the multi-wall nanotube opening will vary by specific carbon nanotubes but may be at least about 1, or at least about 3, up to about 15, or up to about 8 nanometers. Typically, representative additive molecules that fit within representative discrete, multi-wall oxidized carbon nanotubes are less than 50,000 Daltons, or less than 40,000, or less than 30,000, or less than 25,000, or less than 20,000 or even less than 17,000 Daltons.

[0032] Such additives may include, for example, various surfactants or dispersing aids and compounds such as sodium dodecyl sulfate, cetyltrimethyl ammonium bromide, polyvinyl alcohol, polyalkylene oxide such as polyethylene oxide, cellulosics such as carboxymethyl cellulose, polyacids such as polyglycolic acid, polyacrylic acid, and polylactic acid, polyvinylpyrrolidone, various peptides and amino acids, as well as proteins, polysaccharides, combinations thereof and the like. Other additives include, for example, drugs, proteins and compounds such as those described in US 2009/0170768 to Tour et al. which is incorporated herein by reference. Exemplary additives include, for example, a drug molecule, a protein molecule, and combinations thereof. Compounds such as a radiotracer molecule, a radiotherapy molecule, a diagnostic

Samsung Ex. 1002, Page 157 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

imaging molecule, a fluorescent tracer molecule,.and combinations thereof may also be added. And as described in Tour US 2009/0170768 others may "include, but are not limited to, proton pump inhibitors, H2-receptor antagonists, cytoprotectants, prostaglandin analogues, beta blockers, calcium channel blockers, diuretics, cardiac glycosides, antiarrhythmics, antianginals, vasoconstrictors, vasodilators, ACE inhibitors, angiotensin receptor blockers, alpha blockers, anticoagulants, antiplatelet drugs, fibrinolytics, hypolipidemic agents, statins, hypnotics, antipsychotics, antidepressants, monoamine oxidase inhibitors, selective serotonin reuptake inhibitors, antiemetics, anticonvulsants, anxiolytic, barbiturates, stimulants, amphetamines, benzodiazepines, dopamine antagonists, antihistamines, cholinergics, anticholinergics, emetics, cannabinoids, 5-HT antagonists, NSAIDs, opioids. bronchodilator, antiallergics, mucolytics, corticosteroids, beta-receptor antagonists, anticholinergics, steroids, androgens, antiandrogens, growth hormones, thyroid hormones, anti-thyroid drugs, vasopressin analogues, antibiotics, antifungals, antituberculous drugs, antimalarials, antiviral drugs, antiprotozoal drugs, radioprotectants, chemotherapy drugs, cytostatic drugs, and cytotoxic drugs. In various embodiments of the compositions, the at least one type of payload molecule comprises paclitaxel."

[0033] Such additives may include, for example, dicarboxylic/tricarboxylic esters, timellitates, adipates, sebacates, maleates, glycols and polyethers, polymeric plasticizers, bio-based plasticizers, and mixtures thereof. In other embodiments such additives may include, for example, a process oil such as, for example, a process oil selected from the group consisting of naphthenic oils, paraffin oils, paraben oils, aromatic oils, vegetable oils, seed oils, silicones, and mixtures thereof. In other embodiments such additives may include, for example, a solvent such as substituted or unsubstituted, halogenated or nonhalogenated hydrocarbons. Such solvents may include, for example, xylene, pentane, methylethyl ketone, hexane, heptane, ethyl acetate, ethers, carbonates, dicloromethane, dichloroethane, cyclohexane, chloroform, carbon tetrachloride, butyl acetate butanol, benzene, alcohols, and mixtures thereof. In other embodiments such additives may include, for example, at least one reactive species capable of creating a thermoset polymer such as, for example, epoxy, polyurethane, silicone, and mixtures thereof. In other embodiments such additives may include, for example, a natural wax, synthetic wax, or a mixture thereof. Such waxes may include, for example, plant derived, animal derived, petroleum derived, polyethylene derived and other related derivatives. Such waxes may also further comprise such additives as, for example, a fluoroelastomer. In other embodiments such additives may include, for example, at

Samsung Ex. 1002, Page 158 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

least one filler. Such fillers may include, for example, a filler selected from silicon, lead, lead derivatives, carbon black, graphite, graphene, graphene oxides, paramagnetic particles and mixtures thereof. In some embodiments the filler may have at least one dimension less than about 20 microns. Such fillers may comprise particles of any shape, for example, plates, fibers, cubes, rhomboids, spherical, and combinations therof.

[0034] The amount of additive to be included with the dispersion (aqueous or non-aqueous) or other composition of discrete, multi-wall oxidized carbon nanotubes will vary depending upon the specific additive, the specific carbon nanotubes, desired effect, and other parameters. Typically, the amount of additive is such that greater than about 10, or greater than about 20, or greater than about 25, or greater than about 30, or greater than about 40, or greater than about 50, or greater than about 55, or greater than about 60, or greater than about 70, or greater than about 80, or greater than about 99 weight percent of the additive is within the interior of the discrete, multi-wall oxidized carbon nanotubes that are open on at least one or both ends based on the total weight of additive in the composition or dispersion. Similarly, the weight percent of nanotubes in the dispersion or composition is often low based on the total weight of the dispersion or composition, e.g., from about 0.01, or 0.1, or 0.3, or 0.5, or 0.6 up to about 30, or 15, or 10, or 5 or 3, or 1 weight percent. In some embodiments such as, for example, when an additive is wax, oil, or mixtures, the weight percent of nanotubes in the dispersion or composition may be from about 15, or from about 18 up to about 25, or 22% by weight based on the total weight of dispersion or composition. Advantageously, such dispersions or compositions may be in the form of, for example, free flowing particles.

Preparation of the vulcanizable composition according to the present invention:

[0035] A further object of the invention resides in the preparation of the vulcanizable compositions, wherein the elastomer, the concentrate of carbon-nanotubes in an elastomer composition and the cross-linking agent and optionally any of the other ingredients of the composition are mixed together. Typically the mixing is performed at an elevated temperature that may range from about 20° C to about 200° C. The mixing may further be performed in the presence of a solvent which is then removed after mixing.

[0036] Normally the mixing time does not exceed one hour and a time in the range from 2

Samsung Ex. 1002, Page 159 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

to 30 minutes is usually adequate.

[0037] The mixing is suitably carried out in a blending apparatus, e.g. an internal mixer such as a Banbury mixer, or a Haake or Brabender miniature internal mixer. A two roll mill mixer also provides a good dispersion of the carbon-nanotubes as well as of the other optional additives within the elastomer. An extruder also provides good mixing, and permits shorter mixing times. It is possible to carry out the mixing in two of more stages, and the mixing can be done in different apparatus, for example one stage in an internal mixer and one stage in an extruder. However, it should be taken care that no unwanted pre-crosslinking (= scorch) occurs during the mixing stage.

[0038] The compounding and vulcanization may be performed as known to any artisan (see e.g. Encyclopedia of Polymer Science and Engineering, Vol. 4, p. 66 et seq. (Compounding) and Vol. 17, p. 666 et seq. (Vulcanization)). Typically such vulcanization is performed at a temperature in the range of from 100 to 200° C, preferably 130 to 180° C. In one embodiment the preparation of a polymer vulcanizate comprises subjecting the inventive composition to a vulcanization during injection or extrusion molding.

[0039] Following is an example using styrene butadiene as an elastomer with addition of carbon nanotubes of this invention.

[0040] Example 1. The SBR concentrate is melt mixed with additional SBR (Lanxess VSL-5052-0HM) to give a final CNT concentration of 2 percent weight in a Brabender mixer by the following procedure. The temperature of the barrel is set to 115 °C. The SBR and master batch is introduced into the barrel at a speed of 20-30 rpm. The speed is then increased to 50 rpm. Barrel temperature should reach 125 °C. When the torque has reached a constant value, the speed is decreased to 5 rpm and the temperature controller is turned off. When the temperature in the barrel is 95 °C, the speed is increased to 50 rpm. The cure package is added and mixing continues for 5 minutes. The cure package consists of sulfur 3.5 parts per hundred resin, phr, tetrabutylbenzothiozolsulfonamide 0.75phr, diphenylguanidine 0.5 phr, stearic acid 1.5 phr, N-(1,3 Dimethylbutyl) N'-phenyl-p-phenyldiamine 2phr and zinc oxide 3phr.

[0041] A comparative 1 is made as above with the exception that no SBR concentrate is added.

Samsung Ex. 1002, Page 160 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

[0042] The mixture is then cured under the following procedure using a compression molder. The platten temperature is set to 160 °C, the curing overall time to 20 minutes and the water cooling time to 5 minutes. A mass of 40.6 g of rubber sample is cut into small 1/4" pieces and placed in the center of mold window such that it forms a square, occupying 2/3 of the space. Foil sheets are used between sample and compression plates. Mold release is only used on the mold frame. The sample is compressed with pressure less than 10 psi for 2 minutes. Then, the pressure is increased to 25 tons and kept constant for the remaining curing cycle.

[0043] After curing the films are tested in tension at 25°C using a tensile tester with an initial strain rate of $1x10^{-2}s^{-1}$. Engineering Stress is the load divided by the initial cross-sectional area of the specimen. Strain is defined as the distance traversed by the crosshead of the instrument divided by the initial distance between the grips. The 100% modulus is that value of tensile stress at 100% strain. The films are also tested for work done to completely tear the specimen by introducing a razor edge notch of dimension one half the width and perpendicular to the length of the specimen to a tensile specimen.

Samsung Ex. 1002, Page 161 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Table 1. Tensile properties of cured SBR without carbon nanotubes (Comp. Ex. 1) and SBR with discrete carbon nanotubes (Ex. 1)

Sample	Tensile Strength (MPa)	100% Modulus (MPa)	Work done to Tear (MPa)
Comparative 1 SBR	1.1	0.51	0.46
Example 1 SBR + 2% wt CNT	2.26	0.8	0.79

[0044] Seen in Table 1, significant improvements in the values of tensile strength, 100% modulus and work done to tear are gained using 2 percent weight of the carbon nanotubes of this invention. These attributes are important elements that will lead to improved wear in elastomer composites.

[0045] In another aspect of this invention is a preferred method of mixing that results in improved properties wherein the master batch of carbon nanotubes is first melt mixed with another elastomer then additional rubbers, fillers and additives are added and melt mixed further to produce a composition suitable for vulcanization.

Following is an example of preferred mixing

[0046] A comparative example 2 is produced using 3 phr carbon nanotubes of this invention, and carbon black filled rubber system consisting of 3 melt passes. The first pass was to mix the rubber components 60 phr styrene butadiene, SBR Lanxess VSL-5025-0HM and 40 phr Natural Rubber CB 60 grade, and an SBR-carbon nanotubes master batch containing 10 weight percent carbon nanotubes at about 160°C. The second pass was to mix into the first pass products 50 phr carbon black, type N330, 5 phr processing oil Sundex 8125, 1 phr antioxidant 6 PPD Santoflex, 3 phr zinc oxide and 3 phr stearic acid at about 160 °C. The third pass was to mix in the sulfur curing compounds 1.5 phr sulfur and 1.3 phr TBBS at about 110 °C. Each pass was

Samsung Ex. 1002, Page 162 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

performed with a fill factor of 75% using a Brabender mixer.

[0047] Example 2: The improved mixing approach is the same as the control except the first pass is mixing the SBR with the carbon nanotubes master batch for 5 minutes at about 170 °C followed by adding the natural rubber at about 160 °C and melt mixing for a further 5 minutes.

[0048] The results of testing the materials after curing for 8 minutes at about 160 °C are provided in Table 2. The tear initiation and total tear energy are determined from tear specimen ASTM D624-C.

Table 2

	Comparative 2	Example 2
Tensile Stress at Break (MPa)	18.8	20.6
Tensile Elongation to Break %	500	520
Tear Initiation Energy (MPa)	2.9	3.7
Total Tear Energy (MPa)	3.3	4.2

[0049] The above table 2 shows that the example of the invention (prediluted master batch with specific mixing) obtains improved tensile stress at break at over 1.7MPa, improved tear initiation energy at over 0.7MPa and including improved total tear energy at over 0.8 MPa versus the comparative example comprising different mixing techniques, proving the utility and inventiveness of the compositions of the invention.

[0050] Embodiments

1. A composition comprising a plurality of discrete carbon nanotube fibers having an aspect ratio of from about 25 to about 500, and at least one natural or synthetic elastomer, and optionally at least one filler.
2. The composition of embodiment 1 wherein at least 70 percent, preferably at least 80

Samsung Ex. 1002, Page 163 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

percent, by weight of the nanotube fibers are fully exfoliated.

3. The composition of embodiment 1 wherein the nanotube fibers are further functionalized.
4. The composition of embodiment 1 wherein the carbon nanotube fibers comprise an oxidation level from about 3 weight percent to about 15 weight percent.
5. The composition of embodiment 1 wherein the carbon nanotube fibers comprise from about 1 weight percent to about 30 weight percent of the composition.
6. The composition of embodiment 1 in the form of free flowing particles.
7. The composition of embodiment 1 further comprising at least one surfactant or dispersing aid.
8. The composition of embodiment 1 wherein the natural or synthetic elastomer is selected from the group consisting of natural rubbers, polyisobutylene, polybutadiene and styrene-butadiene, butyl rubber, polyisoprene, ethylene propylene diene rubbers and hydrogenated and non-hydrogenated nitrile rubbers, polyurethanes, polyethers, silicones, halogen modified elastomers, especially chloroprene and fluoroelastomers and combinations thereof.
9. The composition of embodiment 1 wherein the fibers are not entangled as a mass.
10. A process to form a carbon nanotube fiber/elastomer composite comprising the steps of:
    (a) selecting discrete carbon nanotube fibers having an aspect ratio of from 25 to 500,
    (b) blending the fibers with a liquid to form a liquid/fiber mixture,
    (c) optionally adjusting the pH to a desired level,
    (d) agitating the mixture to a degree sufficient to disperse the fibers to form a dispersed fiber mixture,
    (e) optionally combining the dispersed fiber mixture with at least one surfactant,
    (f) combining the dispersed fiber mixture with at least one elastomer at a temperature sufficient to incorporate the dispersed fiber mixture to form a carbon nanotube fiber/elastomer composite/liquid mixture,
    (g) isolating the resulting carbon nanotube fiber/elastomer composite from the liquid.
11. The process of embodiment 10 wherein the carbon nanotube fibers comprise from about 1

to about 30 weight percent of the fiber/elastomer composite of (g).

12. The process of embodiment 10 wherein the liquid is aqueous based.

13. The process of embodiment 10 wherein the agitating step (d) comprises sonication.

14. The process of embodiment 10 wherein the elastomer is selected from the group consisting of natural rubbers, polyisobutylene, polybutadiene and styrene-butadiene rubber, ethylene propylene diene rubbers, butyl rubber, polyisoprene and hydrogenated and non-hydrogenated nitrile rubbers, polyurethanes, polyethers, halogen containing elastomers and fluoroelastomers and combinations thereof.

15. The composition of embodiment 1 further comprising sufficient natural or synthetic elastomer to form a formulation comprising from about 0.1 to about 25 weight percent carbon nanotube fibers.

16. The composition of embodiment 1 in the form of a molded or fabricated article, such as a tire, a hose, a belt, a seal and a tank track.

17. The composition of embodiment 1 further comprising carbon black and/or silica and wherein a molded film comprising the composition has a tensile modulus at 5% strain and 25 degrees C of at least about 12 MPa.

18. The composition of embodiment 1 further comprising carbon black and/or silica, and wherein a molded film comprising the composition has a tear property at 25 degrees C of at least about 0.8 MPa.

19. The composition of embodiment 1 further comprising filler, and wherein a molded film comprising the composition has a tensile modulus at 5% strain and 25 degrees C of at least about 8 MPa.

20. A carbon nanotube fiber/elastomer composite, wherein the carbon nanotube fibers are discrete fibers and comprise from about 10 to about 20 weight percent fibers and wherein the elastomer comprises a styrene copolymer rubber.

21. A method for obtaining individually dispersed carbon nanotubes in rubbers and/or elastomers comprising (a) forming a solution of exfoliated carbon nanotubes at pH greater than or equal to about 7, (b) adding the solution to a rubber or elastomer latex to form a mixture at pH greater than or equal to about 7, (c) coagulating the mixture to form a

Samsung Ex. 1002, Page 165 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

concentrate, (d) optionally incorporating other fillers into the concentrate, and (e) melt-mixing said concentrate into rubbers and/or elastomers to form elastomeric composites.

22. The method of embodiment 21 wherein the carbon nanotubes comprise less than or equal to about 2% wt of the solution.
23. The method of embodiment 21 wherein the coagulation step (c) comprises mixing with organic molecules of high water solubility such as acetone, denatured alcohol, ethyl alcohol, methanol, acetic acid, tetrahydrofuran that partially or wholly removes surfactants form the latex/carbon nanotube fiber concentrate.
24. The method of embodiment 21 wherein the coagulation step (c) comprises drying, steam stripping or mechanical agitation of the mixture to fully retain surfactants from the latex/carbon nanotube fiber concentrate.
25. The method of embodiment 21 wherein the coagulation step (c) comprises adding a polymeric coagulating agent, preferably polyethylene oxide.
26. The method of embodiment 21 wherein the coagulation step (c) comprises adding at least one acid to the mixture at pH less than or equal to about 4.5 together with at least one monovalent inorganic salt to retain surfactants from the latex/carbon nanotube fiber concentrate.
27. The method of embodiment 21 wherein the mixture or concentrate has a divalent or multivalent metal ion content of less than about 20,000 parts per million.
28. The method of embodiment 21 wherein the mixture or concentrate has a divalent or multivalent metal ion content of less than about 10,000 parts per million.
29. The method of embodiment 21 wherein the mixture or concentrate has a divalent or multivalent metal ion content of less than about 1,000 parts per million.
30. The method of embodiment 21 wherein the coagulation step (c) is such that agglomerations of carbon nanotubes comprise less than 1percent weight of the concentrate and wherein the carbon nanotube agglomerates comprise more than 10 microns in diameter.
31. An individually dispersed carbon nanotube/rubber or carbon nanotube/elastomer concentrate comprising free flowing particles wherein the concentrate contains a concentration of less than 20,000 parts per million divalent or multivalent metal salt.
32. An individually dispersed carbon nanotube/rubber or carbon nanotube/elastomer concentrate comprising free flowing particles wherein the concentrate contains

Samsung Ex. 1002, Page 166 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

agglomerations of carbon nanotubes that comprise less than 1percent by weight of the concentrate and wherein the carbon nanotube agglomerates comprise more than 10 micrometers in diameter.

33. A composite comprising the concentrate of embodiments 31 or 32.
34. A method of dispersing the individually dispersed carbon nanotube/rubber or carbon nanotube/elastomer concentrate into an elastomer by first melt mixing the elastomer and concentrate to a uniform consistency before addition of other fillers and oils.
35. The composition of embodiment 5 comprising a mixture of natural and synthetic elastomers such that each elastomer is compatible with at least one of the elastomers such that the nanotubes are individually dispersed in the mixture of elastomer(s).
36. The composition of embodiment 35 wherein at least one of the elastomers does not comprise nanotubes.
37. A composition comprising one first elastomer and nanotubes, another different second elastomer and nanotubes, and yet another third elastomer which does not comprise nanotubes.
38. A process to increase cure rate of a composition comprising at least one natural or synthetic elastomer and carbon nanotubes, comprising selecting discrete carbon nanotubes to form the cured composition, wherein the cured composition has at least a 25 percent curing rate increase over the curing rate obtained for a cured elastomer not comprising carbon nanotubes.
39. A composition of (A) elastomers, fillers and discrete carbon nanotubes wherein to maintain or increase stiffness or hardness as compared to (B) a composition not containing discrete carbon nanotubes, wherein composition (A) has less filler content than (B).
40. A composition of embodiment 39 wherein 1x parts per hundred elastomer discrete carbon nanotube of composition (A) replaces 5x parts per hundred elastomer or more of the non-carbon nanotube filler of composition (B), where x is 0.1-15.
41. A method of mixing carbon nanotubes and at least one first elastomer, wherein a master batch of carbon nanotubes is first melt mixed with the elastomer, either the same or different from the first elastomer, at a temperature from about 20 to about 200° C, subsequently then additional elastomers, fillers, and additives are added and melt mixed further, to produce a composition suitable for vulcanization.

Samsung Ex. 1002, Page 167 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

42. A method of mixing carbon nanotubes and at least one first elastomer, wherein a master batch of carbon nanotubes is first mixed with the elastomer, either the same or different from the first elastomer, at a temperature from about 20 to about 200° C and in the presence of at least one solvent, then the at least one solvent is removed, subsequently and optionally additional elastomers, fillers and additives are added and mixed further to produce a composition suitable for vulcanization.

43. A method of mixing carbon nanotubes and at least one first elastomer, wherein a master batch of carbon nanotubes is first mixed with the elastomer, either the same or different from the first elastomer, at a temperature from about 20 to about 200° C and in the presence of at least one solvent, subsequently and optionally additional elastomers, fillers and additives are added and mixed further, followed by solvent removal to produce a composition suitable for vulcanization.

Samsung Ex. 1002, Page 168 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

CLAIMS

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 up to about 30% by weight based on the total weight of the dispersion.
2. The dispersion of claim 1 wherein at least 70 percent by weight of the nanotubes are discrete.
3. The dispersion of claim 1 in the form of free flowing particles.
4. The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes comprise an oxidation species selected from carboxylic acid or a derivative carbonyl containing species wherein the derivative carbonyl species is selected from ketones, quaternary amines, amides, esters, acyl halogens, and monovalent metal salts..
5. The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes comprise an oxidation species selected from hydroxyl or derived from hydroxyl containing species.
6. The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes are present in the range of 15% to about 25% by weight based on the total weight of the dispersion.
7. The dispersion of claim 1 wherein the oxidized, discrete carbon nanotubes are present in the range of 18% to about 22% by weight based on the total weight of the dispersion.
8. The dispersion of claim 1, wherein the additive is selected from the group consisting of dicarboxylic/tricarboxylic esters, timellitates, adipates, sebacates, maleates, glycols and polyethers, polymeric plasticizers, bio-based plasticizers, and mixtures thereof.
9. The dispersion of claim 1, wherein the additives is a process oil.

Samsung Ex. 1002, Page 169 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

10. The dispersion of claim 9, where in the process oil is selected from the group consisting of naphthenic oils, paraffin oils, paraben oils, aromatic oils, vegetable oils, seed oils, silicones, and mixtures thereof.

11. The dispersion of claim 1, wherein the additive is a solvent.

12. The dispersion of claim 11, where in the solvent is selected from the group consisting of substituted or unsubstituted, halogenated or nonhalogenated hydrocarbons.

13. The dispersion of claim 1, wherein the additive comprises at least one reactive species capable of creating a thermoset polymer.

14. The dispersion of claim 13, wherein the thermoset polymer is selected from epoxy, polyurethane or silicone.

15. The dispersion of claim 1, wherein the additive comprises natural wax, synthetic wax, or mixtures thereof.

16. The dispersion of claim 15 further comprising a fluoroelastomer.

17. The dispersion of claim 1 which further comprises at least one filler.

18. The dispersion of claim 17, wherein the filler has at least one dimension less than about 20 microns.

19. The dispersion of claim 18, wherein the filler is selected from silicon, lead, lead derivatives, carbon black, graphite, graphene, graphene oxides, paramagnetic particles and mixtures thereof.

20. A dispersion comprising a plurality of oxidized, discrete carbon nanotubes and at least one wax additive and at least one fluoroelastomer, wherein the discrete carbon nanotubes have

Samsung Ex. 1002, Page 170 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

an aspect ratio of 25 to 500, are multiwall, and are present in the range of up to about 30% by weight based on the total weight of the dispersion.

Samsung Ex. 1002, Page 171 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

ABSTRACT

[0051] This present invention relates to the 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.

Samsung Ex. 1002, Page 172 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or **all** of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Clive	P.	Bosnyak	

Residence Information (Select One) • US Residency Non US Residency Active US Military Service

City	State/Province	Country of Residence
Dripping Springs	TX	US

Mailing Address of Inventor:

Address 1	12001 Settlers Trail
Address 2	

City	State/Province	Postal Code	Country
Dripping Springs	TX	78620	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kurt	W.	Swogger	

Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

City	State/Province	Country of Residence
Austin	TX	US

Mailing Address of Inventor:

Address 1	4211 Waters Edge Cove
Address 2	

City	State/Province	Postal Code	Country
Austin	TX	78731	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	130577		
Email Address	pat-tmk@andrewskurth.com	Add Email	Remove Email

Application Information:

Title of the Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS		
Attorney Docket Number	MORE-0020CIP2/262468	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	130577		

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15225215	Continuation in part of	15166931	2016-05-27	9422413	2016-08-23
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15166931	Continuation of	14924246	2015-10-27	9353240	2016-05-31
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14924246	Continuation of	13993206	2013-06-11	9212273	2015-12-15
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
13993206	a 371 of international	PCT/EP2011/072427	2011-12-12		
Prior Application Status	Expired				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
PCT/EP2011/072427	Claims benefit of provisional	61423033	2010-12-14		
Prior Application Status					Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
	Continuation in part of	15225215	2016-08-01		

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	MOLECULAR REBAR DESIGN, LLC		
Mailing Address Information For Applicant:			
Address 1	13477 Fitzhugh Road		
Address 2			
City	Austin	**State/Province**	TX
Country	US	Postal Code	78736
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	MOLECULAR REBAR DESIGN, LLC

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	13477 Fitzhugh Road		
Address 2			
City	Austin	**State/Province**	TX
Country i	US	Postal Code	78736
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Gregory L. Porter/			Date (YYYY-MM-DD)	2016-10-07
First Name	Gregory	Last Name	Porter	Registration Number	40131

Additional Signature may be generated within this form by selecting the Add button. Add

PTO/AIA/14 (11-15)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MORE-0020CIP2/262468
	Application Number	
Title of Invention	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBES			
First Named Inventor/Applicant Name:	Clive P. Bosnyak			
Filer:	Gregory L. Porter/Jeanne Dunn			
Attorney Docket Number:	MRE020CIP2/262468			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	70	70
UTILITY SEARCH FEE	2111	1	300	300
UTILITY EXAMINATION FEE	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	70	70
Petition:				

Samsung Ex. 1002, Page 182 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	800

Samsung Ex. 1002, Page 183 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Electronic Acknowledgement Receipt	
EFS ID:	27158240
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBES
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MRE020CIP2/262468
Receipt Date:	07-OCT-2016
Filing Date:	
Time Stamp:	16:41:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$800
RAM confirmation Number	101116INTEFSW00003399500897
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

Samsung Ex. 1002, Page 184 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Application.pdf	258638 fcfd06bc864825779a9c3ebd4870f4914fc6cade5	yes	24

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Specification	1	20
Claims	21	23
Abstract	24	24

Warnings:					
Information:					
2	Application Data Sheet	ADS.pdf	1793937 dff3e2a549e3dff47059d37609b6fc6ba1ee83e5e	no	9
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	36827 93e063a26d5a76f8f07bffe1f15b703295b5b288	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2089402		

Samsung Ex. 1002, Page 185 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Samsung Ex. 1002, Page 186 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2016-10-07
First Named Inventor	Clive P. Bosnyak
Art Unit	
Examiner Name	
Attorney Docket Number	MORE-0020CIP2 / 262468

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7453085	B2	2008-11-18	Chang et al.	
	2	7708979	B2	2010-05-04	Lowman et al.	
	3	7611628	B1	2009-11-03	Hinds, III	
	4	7229556	B1	2007-06-12	Hinds, III, et al.	
	5	3884606		1975-05-20	Schrenk	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20070259994	A1	2007-11-08	Tour et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	2	20070244263	A1	2007-10-18	Burrowes	
	3	20090169876	A1	2009-07-02	Yamamoto et al.	
	4	20100258238	A1	2010-10-14	Hoover et al.	
	5	20030096104	A1	2003-05-22	Tobita et al.	
	6	20030144415	A1	2003-07-31	Wang et al.	
	7	20080026126	A1	2008-10-23	Fleishner et al.	
	8	20080312364	A1	2008-12-18	Piccione et al.	
	9	20090030105	A1	2009-01-29	Miyasaka et al.	
	10	20100201023	A1	2010-08-12	Piccione et al.	
	11	20100258238	A1	2010-10-14	Hoover et al.	
	12	20080102020	A1	2008-05-01	Niu et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	13	20090038858	A1	2009-02-12	Griffo et al.	
	14	20110311876	A1	2011-12-22	Sturgeon et al.	
	15	20080090951	A1	2008-04-17	Mao Dongshenh et al.	
	16	20080299374	A1	2008-12-04	Choi et al.	
	17	20100215724	A1	2010-08-26	Prakash et al.	
	18	20100324315	A1	2010-12-23	Atyabi et al.	
	19	20070280876	A1	2007-12-06	Tour et al.	
	20	20090311489	A1	2009-12-17	Sheehan et al.	
	21	20080290007	A1	2008-11-27	Fagan et al.	
	22	20100004468	A1	2010-01-07	Wong et al.	
	23	20050106093	A1	2005-05-19	Iijima et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	24	20070125707	A1	2007-06-07	Komatsu et al.	
	25	20070215841	A1	2007-09-20	Ford et al.	
	26	20050006623	A1	2005-01-13	Wong et al.	
	27	20060286456	A1	2006-12-21	Fu et al.	
	28	20080220148	A1	2008-09-11	Clarkson et al.	
	29	20100098877	A1	2010-04-22	Cooper et al.	
	30	20150182473	A1	2015-07-02	Bosnyak et al.	
	31	20150238476	A1	2015-08-27	Bosnyak et al.	
	32	20160095940	A1	2016-04-07	Swogger et al.	
	33	20090171768	A1	2009-07-02	Chopra et al.	
	34	20130178722	A1	2013-07-11	Aria et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	35	20120329640	A1	2012-12-27	Bosnyak et al.	
	36	20120183770	A1	2012-07-19	Bosnyak et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2003060002	WO	A1	2003-07-24	KH Chemicals Co.		
	2	2887554	FR	A1	2006-12-29	Arkema SA		
	3	2241522	EP	A2	2010-10-20	Xerox Corp.		
	4	2004101958	JP	A	2004-04-02	Sumitomo Ruber Ind.		
	5	2004210830	JP	A	2004-07-29	USR Corp.		
	6	2008112362	WO	A2	2008-09-18	NaturalNano Inc.		
	7	1061040	EP	A1	2000-12-20	Yoo		

EFS Web 2.1.17

Samsung Ex. 1002, Page 191 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	8	2007516314	JP		2007-06-21	Zyvex Corp.		
	9	2009534284	JP		2009-09-24	Trinity College, Dublin		
	10	2004106420	WO	A1	2004-12-09	Zyvex Corp.		
	11	2007119231	WO	A1	2007-10-25	Trinity College, Dublin		
	12	2009155267	WO	A1	2009-12-23	Mysticmd, Inc.		
	13	2012083358	WO	A1	2012-06-28	Commonwelth Scientific and Ind. Res. Organization		
	14	2013011516	WO	A1	2013-01-24	Vulcan Automotive Industries Ltd.		
	15	1665446	EP	B1	2012-03-21	Commonwealth Scientific and Ind. Res. Organization		
	16	2005014708	WO	A1	2005-02-17	William Marsh Rice University		
	17	2010117392	WO	A1	2010-10-14	Bosnyak et al.		
	18	2008153609	WO	A1	2008-12-18	Seldon Technologies, Inc.		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	19	2006096613	WO	A1	2006-09-14	Northwestern University		
	20	2008011623	WO	A1	2008-01-24	International Business Machines Corp.		
	21	2008051239	WO	A1	2008-05-02	Hyperion Catalysis International, Inc.		
	22	2006-240901	JP		2006-09-14	Bussan Nanotech Research Institute Inc.		
	23	2005-334594	JP	A	2005-12-08	Toshihisa et al.		
	24	20090108426	KR	A	2009-10-15	Korea Adv. Inst. Sci. & Tech.		
	25	2010087971	WO	A2	2010-08-05	California Institute of Technology		
	26	2013090844	WO	A1	2013-06-20	California Institute of Technology		
	27	2005-334594	JP	A	2005-12-08	Masahiro		

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T5

EFS Web 2.1.17

Samsung Ex. 1002, Page 193 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	1	DYKE, ET AL., "Solvent-free functionalization of carbon nanotubes", 125 J. Am. Chem. Soc. (2003), pg. 1156 - 1157	
	2	AVILES ET AL., "Evaluation of Mild Acid Oxidation Treatments for MWCNT Functionalization", 47 Carbon (2009), pp. 2970-2975	
	3	BHATTACHARYYA ET AL., "Improving reinforcement of natural rubber by networking of activated carbon nanotubes" 46 Carbon (2008), pp. 1037-145	
	4	SUI ET AL., "Curing kinetics and mechanical behavior of natural rubber reinforced with pretreated carbon nanotubes", 485 Materials Sci.. & Eng. A (2008), pp. 524-531	
	5	GOYANES ET AL., "Carboxylation treatment of multiwalled carbon nanotubes monitored by infrared and ultraviolet spectroscopies and scanning probe microscopy:", 16 Diamond & Related Materials (2007), pp. 412-417	
	6	Nanocyl, Nanocyl NC3100 Series Product Information Sheet: http://www.nanocyl.com/en/Products-Solutions/Products/Research-Grades/Thin-Multi-Wall-Carbon-Nanotubes (May 29, 2012)	
	7	SHANMUGHARAJ ET AL.,"Physical and chemical characteristics of multiwalled carbon nanotubes functionalized with aminosilane and its influence on the properties of natural rubber composites", 67(9) Compos. Sci. & Tech. (2007), pp. 1813-1822	
	8	DEFALCO ET AL., "Carbon nanotubes as reinforcement of styrene-butadiene rubber", 254(1) Appl. Surface Sci. (2007), pp. 262-265	
	9	ZHOU ET AL., "Polypropylene composites having carbon nanotubes and powder styrene-butadiene rubber", Instit. of Electr. Eng., Steveage, GB (2008)	
	10	ZHOU ET AL., "New Fabrication and Mechanical Properties of Styrene-Butadiene Rubber/Carbon Nanotubes Nanocomposite", 26(12) J. Mater. Sci. & Tech. (2010), pp. 1127-1132	
	11	TCHOUL ET AL., "Effect of Mild Nitric Acid Oxidation on Dispersability, Size, and Structure of Single-Walled Carbon Nanotubes", 10 Chem. Mater. (2007), pp. 5765-5772	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	12	XING ET AL., "Sonochemical Oxidation of Multiwalled Carbon Nanotubes", 21 Langmuir (2005), pgs. 4185-4190	
	13	SPITALSKY, Z., ET AL., "HIGH VOLUME FRACTION CARBON NANOTUBE-EPOXY COMPOSITES", Nanotechnology, Vol. 20, No. 40, October 7, 2009	
	14	KIM, HEE-CHEUL, ET AL., "THE EFFECT OF DIFFERENT TREATMENT METHODS OF MULTIWALLED CARBON NANOTUBES ON THERMAL AND FLEXURAL PROPERTIES OF THEIR EPOXY NANOCOMPOSITES", Journal of Polymer Science: Part B: Polymer Physics, Vol. 48, No. 11, June 1, 2010	
	15	HADJIEV, V.G., ET AL., "RAMAN MICROSCOPY OF RESIDUAL STRAINS IN CARBON NANOTUBE/EPOXY COMPOSITES", Carbon, Vol. 48, No.6, May 1, 2010	
	16	LEE, J.H., ET AL., "EFFECTS OF MOISTURE ABSORPTION AND SURFACE MODIFICATION USING 3-AMINOPROPYLTRIETHOXYSILANE ON THE TENSILE AND FRACTURE CHARACTERISTICS OF MWCNT/EPOXY NANOCOMPOSITES", Applied Surface Science, Vol. 256, No. 24, June 15, 2010	
	17	ZHU, JIANG, ET AL., "IMPROVING THE DISPERSION AND INTEGRATION OF SINGLE-WALLED CARBON NANOTUBES IN EPOXY COMPOSITES THROUGH FUNCTIONALIZATION", Nano Letters, Vol. 3, No.8, August 1, 2003	
	18	LIU, L., ET AL., "RUBBERY AND GLASSY EPOXY RESINS REINFORCED WITH CARBON NANOTUBES", Composites Science and Technology, Vol. 65, No. 11-12, September 1, 2005	
	19	CHEN, WEI, ET AL., "CARBON NANOTUBE-REINFORCED POLYURETHANE COMPOSITE FIBERS", Composites Science and Technology, Vol. 66, No. 15, December 1, 2006	
	20	WU, GUOLIANG, ET AL., "PREPARATION AND PROPERTIES OF HYDROXYLATED STYRENE-BUTADIENE-STYRENE TRI-BLOCK COPOLYMER IMULTI-WALLED CARBON NANOTUBES NANOCOMPOSITES VIA COVALENT BOND", Materials Science and Engineering; Vol. 527, No. 20, May 6, 2010	
	21	BARROSO-BUJANS, F., ET AL., "EFFECTS OF FUNCTIONALIZED CARBON NANOTUBES IN PEROXIDE CROSSLINKING OF DIENE ELASTOMERS", European Polymer Journal, Vol. 45, No.4, April 1, 2009	
	22	ZHOU, XIANG-WEN, ET AL., "PREPARATION AND PROPERTIES OF POWDER STYRENE-BUTADIENE RUBBER COMPOSITES FILLED WITH CARBON BLACK AND CARBON NANOTUBES", Materials Research Bulletin, Vol. 42, No. 3, February 22, 2007	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	23	VAST, L., ET AL., "PREPARATION AND ELECTRICAL CHARACTERIZATION OF A SILICONE ELASTOMER COMPOSITE CHARGED WITH MULTI-WALL CARBON NANOTUBES FUNCTIONALIZED WITH 7-OCTENYLTRICHLOROSILANE", Composites Science and Technology, Vol. 67, No.5, January 18, 2007	
	24	BROZA, GEORG, ET AL., "THERMOPLASTIC ELASTOMERS WITH MULTI-WALLED CARBON NANOTUBES: INFLUENCE OF DISPERSION METHODS ON MORPHOLOGY", Composites Science and Technology; Vol. 70, No.6, June 1, 2010	
	25	CHEN, SHUGUO, ET AL., "THERMAL DEGRADATION BEHAVIOR OF HYDROGENATED NITRILE-BUTADIENE RUBBER (HNBR) / CLAY NANOCOMPOSITE AND HMBR / CLAY/ CARBON NANOTUBE NANOCOMPOSITES", Thermochimica Acta; Vol. 491, No. 1-2, July 20, 2009	
	26	BOKOBZA, "MULTIWALL CARBON NANOTUBE ELASTOMERIC COMPOSITES; A REVIEW", Polymer, Vol. 48, No. 17, August 3, 2007	
	27	ZHANG ET AL., " Effect of Chemical Oxidation on the Sturcture of Single-Walled Carbon Nanotubes, 107(16) J. Phys. Chem. B (2003), pp. 3712-3718	
	28	Press Release - "Biopact Launches R&D Kits in Philadelphia at Bio Conference", retrieved from Biopact.com (2016)	
	29	YOONG ET AL., "Enhanced cytotoxicity to cancer cells by mitochondria-targeting MWCNTs containing platinum(IV) prodrug of cisplatin", 35(2) Biomaterials (10/18/2013), pgs. 748-759	
	30	LUO ET AL., "Carbon nanotube nanoreservoir for controlled release of anti-inflammatory dexamethasone", 32(26) Elsevier Science Publishers BV, Barking GB (2011), pgs. 6316-6323	
	31	WU ET AL., "PEGylated multi-walled carbon nanotubes for encapsulation and sustained release of oxaliplatin" 30(2) Pharmaceutical Research (2012), pgs.412-423	
	32	WU ET AL., "Trojan-Horse Nanotube On-Command Intracellular Drug Delivery", 12(11) Nano Letters (2012), pgs. 5475-5480	
	33	RAOOF ET AL., "Remotely triggered cisplatin release from carbon nanocapsules by radiofrequency fields", 34(7) Biomaterials (2013), pgs. 1862-1869	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

	34	AHMED ET AL., "Adsorption-Desorption Behavior of Polyvinyl Alcohol on Polystyrene Latex Particles", ACS Symp. Series 240 (1983), pgs. 77-94	
	35	DANIELSSON, J.,"NMR Studies of the amylois b-peptide" Ph.D. Thesis, Stockholm University (2007)	
	36	MASHAT ET AL., "Zippered release from polymer-gated carbon nanotubes", 22 J. Mater. Chem. (2012), pgs. 11503-11508	
	37	SHEN ET AL., "Polyethyeneimine-Mediated Functionalization of Multiwalled Carbon Nanotubes: Synthesis, Characterization, and In Vitro Toxicity Assay, 113(8) J. Phys. Chem. C (2009), pgs. 3150-3156	
	38	ROSCA ET AL., "Oxidation of multiwalled carbon nanotubes by nitric acid", 43(15) Carbon (2005), pgs. 3124-3131	
	39	ZIEBACZ ET AL., "Crossover regime for diffusion of nanoparticles in polyethylene glycol solutions: influence of depletion layer", Electronic Supp. Mat. (ESI) for Soft Matter, Royal Soc. Chem. (2011), pgs. 1-10	
	40	KOVTYUKHOVA ET AL., "Individual Single-Walled Nanotubes and Hydrogels Made by Oxidative Exfoliation of Carbon Nanotube Ropes, 125 J. Amer. Chem. Soc. (2003, pg. 9761	
	41	ANDREWS ET AL., "Continuous Production of Aligned Carbon Nanotubes: A Step Closer to Commercial Realization", 303 Chem. Phys. Let. 467 (1999)	
	42	MARGETTS ET AL., "Transdermal drug delivery: principles and opoid therapy", 7(5) Oxford Journal, Medicine BJA: CEACCP (2007), pgs. 171-176	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

EFS Web 2.1.17

Samsung Ex. 1002, Page 197 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2016-10-07
	First Named Inventor	Clive P. Bosnyak
	Art Unit	
	Examiner Name	
	Attorney Docket Number	MORE-0020CIP2 / 262468

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Gregory L. Porter/	Date (YYYY-MM-DD)	2016-10-07
Name/Print	Gregory L. Porter	Registration Number	40131

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	27159073
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	07-OCT-2016
Filing Date:	
Time Stamp:	17:20:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	533844 89807e70776943a2ac11aaedea12505ada1764cc	no	14
Warnings:					

Samsung Ex. 1002, Page 201 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:					
2	Foreign Reference	WO_2003_060002.pdf	581477 3cc36a20a10d673fadf1638f9188fc9ae5b2d a0a	no	14
Warnings:					
Information:					
3	Foreign Reference	FR_2887554_B1.pdf	823619 b82f84eb57e5e771235fad434cbcf9abbf73 690e	no	19
Warnings:					
Information:					
4	Foreign Reference	EP_2241522_A2.pdf	686326 a9ef9a3a671aaf1fafc904aa47453fe2f37dca f5	no	13
Warnings:					
Information:					
5	Foreign Reference	JP_2004_101958A.pdf	504242 d1609f5733d2540e2e6f51de6fe02cc97429 0a74	no	13
Warnings:					
Information:					
6	Foreign Reference	JP_2004_210830A.pdf	447729 6339251924b42a9cdcd89e179612f6b6a886 b8fb3	no	10
Warnings:					
Information:					
7	Foreign Reference	WO_2008_112362.pdf	1137539 9e063f1c40ba1f8c4d51efc9ad3f7cdd59c3d 512	no	18
Warnings:					
Information:					
8	Foreign Reference	EP_1061040_A1_2.pdf	474158 79f63d8aa8d2cbdbc15a122ebd3afb8783d 1f50f	no	12
Warnings:					
Information:					

9	Foreign Reference	JP_2007_516314.pdf	1386191 8e74498ba710a87d6abb797acefc32d2395 3bd8f	no	67
Warnings:					
Information:					
10	Foreign Reference	JP_2009_534284A.pdf	940934 58bb2c4dd77897cd07c7337f59c9eda6ef4 b9e6a	no	26
Warnings:					
Information:					
11	Foreign Reference	WO_2004_106240.pdf	1452541 1f8480eb8a5ecd6ef03770ee26f4f550d9d8d 1dfa	no	28
Warnings:					
Information:					
12	Foreign Reference	WO_2007_119231.pdf	1856445 1d399e639da6bfc1d7088e891f1aaaa1cb0 b1cc2	no	48
Warnings:					
Information:					
13	Foreign Reference	WO_2009_155267.pdf	1580403 ff91765251b81ae83e98442160e1bda50c7 b828d	no	35
Warnings:					
Information:					
14	Foreign Reference	WO_2012_083358.pdf	2053251 a1d8d53a3efd8a318e8926abfd5fd796934a f9c6	no	45
Warnings:					
Information:					
15	Foreign Reference	WO_2013_011516.pdf	2729988 9bc0b9b5699be4bb2f163090a8cbb41bcb5 c56888	no	38
Warnings:					
Information:					

16	Foreign Reference	EP_1665446A1.pdf	2337556 bfbbf1474991a8bb7875d37c84e4e5b9625eabbc	no	57
Warnings:					
Information:					
17	Foreign Reference	WO_2005_014708.pdf	2260673 4d2a223e2ce4b55c458b31504759efed0f0c878b	no	46
Warnings:					
Information:					
18	Foreign Reference	WO_2010_117392.pdf	3729070 b6f0fda1173965b3e8e064b14be92721c6c96ee2	no	44
Warnings:					
Information:					
19	Foreign Reference	WO_2008_153609.pdf	1898945 bab02a0fe4a36449edae2a48425ad191354458c3	no	37
Warnings:					
Information:					
20	Foreign Reference	WO_2006_096613.pdf	2864412 28ae1c3370e6a245edcb356b165d97ddcd23877a	no	60
Warnings:					
Information:					
21	Foreign Reference	WO_2008_011623.pdf	955638 8b4b820114278a70ce8d0fa1a06f85cb05b3f613	no	38
Warnings:					
Information:					
22	Foreign Reference	WO_2008_051239.pdf	1641515 33ed53ca240900c466a858ebd99334638cf47c6c	no	25
Warnings:					
Information:					

23	Foreign Reference	JP_2006_240901A.pdf	637234 d293a0a52d48c1f393855fdb966844f761ff53e8	no	19
Warnings:					
Information:					
24	Foreign Reference	JP_2005_334594A.pdf	175779 a746b40b7703496d50c5410f5ef61b7efd1b577a	no	5
Warnings:					
Information:					
25	Foreign Reference	KR_2009_0108426A.pdf	3176811 82efab74567e459c34c6cfcf2a9197b4947dd8dbb	no	24
Warnings:					
Information:					
26	Foreign Reference	WO_2010_087971.pdf	464208 d82a91644c1b9545c277dbc11b9f82fd16e93847	no	32
Warnings:					
Information:					
27	Foreign Reference	WO_2013_090844.pdf	284020 9858318133fa93cc44e47b7e06ff57c5ec7e0a96	no	16
Warnings:					
Information:					
28	Foreign Reference	JP_2005_334594.pdf	153079 eb2836061ac63e478bdfbb938e0914ba73f897da	no	7
Warnings:					
Information:					
29	Non Patent Literature	DYKE.pdf	3714549 651640d136a4b5c8f3b3c1d1997b74968f71297a	no	4
Warnings:					
Information:					

Samsung Ex. 1002, Page 205 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

30	Non Patent Literature	Aviles.pdf	511846 1cbb9705bbfc87c1c67970ac7c37e195709 0f5eb	no	6
Warnings:					
Information:					
31	Non Patent Literature	Bhattacharyya.pdf	344322 63aa08902bae5956b16ea04709ccd7d553 41a35c	no	9
Warnings:					
Information:					
32	Non Patent Literature	Sui_1.pdf	890691 85d0333d4d2c8d159dd605b429de425ecf4 d50c3	no	8
Warnings:					
Information:					
33	Non Patent Literature	Goyanes.pdf	1352404 f3dd77e5250ffd603cbbb0797f5441436e4d 07f8	no	6
Warnings:					
Information:					
34	Non Patent Literature	Nanocyl.pdf	103739 c921a3c299a0b549ae148088d0fabfc7949e cb4a	no	1
Warnings:					
Information:					
35	Non Patent Literature	Shanmugharaj.pdf	284069 acc0f1c585a092026b6cd5cfb63c40a6d5c6 995e	no	10
Warnings:					
Information:					
36	Non Patent Literature	DeFalco.pdf	636405 663591f91b0a4d3383d4150da679e43394a 62ba1	no	4
Warnings:					
Information:					

37	Non Patent Literature	Zhou_Poly.pdf	534696 7c9b06f0641a125970562b1126a78d749b5e9728	no	4
Warnings:					
Information:					
38	Non Patent Literature	Zhou_newfabricationpdf.pdf	578800 8c2c8c27cc81e403046686612c2f7b78b5c21618	no	6
Warnings:					
Information:					
39	Non Patent Literature	Tchoul.pdf	293343 98b25f8771a124f9900e130eb0b3a578a7c6a0e0	no	8
Warnings:					
Information:					
40	Non Patent Literature	Xing_Sonochemical.pdf	242491 bc16946220560a88a65689ff83673724631bb1c79	no	6
Warnings:					
Information:					
41	Non Patent Literature	Spitalsky.pdf	908496 742d4a76613c5890475694641f03bd01ee3c81ae3	no	8
Warnings:					
Information:					
42	Non Patent Literature	Kim_Effect_of_Different_Treatment.pdf	1057028 3422fb0bdd50191155b0bafa390ff52c2800ad674	no	10
Warnings:					
Information:					
43	Non Patent Literature	Hadjiev.pdf	212812 7048739ac3266aecf96924c76ea9ab9c48c288b4	no	7
Warnings:					
Information:					

44	Non Patent Literature	Lee_effects.pdf	1157728 630c9d5d5cd1a40a7f95244eba19dd910a6aeccf	no	10
Warnings:					
Information:					
45	Non Patent Literature	Zhu.pdf	251308 5a5af7c36129101262293 68ec7716091c87d7bc3	no	7
Warnings:					
Information:					
46	Non Patent Literature	Liu_Rubbery.pdf	229878 2eb7976a7e9f935ba293af08be70e9030aed1c8f	no	8
Warnings:					
Information:					
47	Non Patent Literature	Wu_Preparation.pdf	770309 200287cc811b2d7533d2769dce4c77f88c78a7e7	no	7
Warnings:					
Information:					
48	Non Patent Literature	Chen_Carbon.pdf	520258 6f65ff2321a4ccfcc3b66eddad2392300aab05ef	no	6
Warnings:					
Information:					
49	Non Patent Literature	Barroso-Bujans.pdf	1184342 efca36abb87580d79cbc5339ea26fe3914ad7fed	no	7
Warnings:					
Information:					
50	Non Patent Literature	Zhou.pdf	263583 5be1bf85b1bd1fbf74b084448c5c4c9dbc0e0255	no	9
Warnings:					
Information:					

51	Non Patent Literature	Vast_Preparation.pdf	1123618 e9b4115cbda0ff8c4bfe0b7bf278ac9d391f79a5	no	10
Warnings:					
Information:					
52	Non Patent Literature	Broza_Thermoplastic.pdf	500647 7ad3e8383d6a88a7e69465d5ef07655d4050c4bd	no	5
Warnings:					
Information:					
53	Non Patent Literature	Chen_Thermal.pdf	640785 8055ae4148090c7a93371846a9f7a426ca50ef8b	no	6
Warnings:					
Information:					
54	Non Patent Literature	Bobobza.pdf	532699 687c09af63539577fd58a9f702578b77ce6b7d3f	no	14
Warnings:					
Information:					
55	Non Patent Literature	Zhang.pdf	292096 78ecf498f0b09cdf3e5358d8238d8a0ac6bc2e06	no	7
Warnings:					
Information:					
56	Non Patent Literature	Luo.pdf	1005519 b7a11fa5e29d80cf93826028 52fc6a30b6ca0de8	no	8
Warnings:					
Information:					
57	Non Patent Literature	Wu_PEGalated.pdf	818674 82067135e623da5c8d84c20ffa20d340848dc413	no	13
Warnings:					
Information:					

Samsung Ex. 1002, Page 209 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

58	Non Patent Literature	Wu_Trojan.pdf	779908 490d013655ea320aeecd9e0e9e7b79beb7deab59	no	6
Warnings:					
Information:					
59	Non Patent Literature	Raoof.pdf	1320571 755800a4c66149949b7249f3132706d3b7635cd9	no	8
Warnings:					
Information:					
60	Non Patent Literature	Ahmed.pdf	1452937 0df9e4d214bda069899e687853bb6a07359a73ef	no	20
Warnings:					
Information:					
		Total Files Size (in bytes):	62278178		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt	
EFS ID:	27159230
Application Number:	15288553
International Application Number:	
Confirmation Number:	8330
Title of Invention:	DISPERSIONS COMPRISING DISCRETE CARBON NANOTUBE FIBERS
First Named Inventor/Applicant Name:	Clive P. Bosnyak
Customer Number:	130577
Filer:	Gregory L. Porter/Jeanne Dunn
Filer Authorized By:	Gregory L. Porter
Attorney Docket Number:	MORE-0020CIP2/262468
Receipt Date:	07-OCT-2016
Filing Date:	
Time Stamp:	17:28:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	Danielsson.pdf	3858535 27808d053898843054a296d6d26663408fe daa8e	no	87
Warnings:					

Samsung Ex. 1002, Page 211 of 213
Samsung Electronics Co., Ltd., et al. v. Molecular Rebar Design, LLC
IPR2025-00355

Information:					
2	Non Patent Literature	Mashat.pdf	653867 3a53f684138ecf76ee25c8c4e4659e9546173fcc	no	6
Warnings:					
Information:					
3	Non Patent Literature	Shen.pdf	1000631 735249233de157b3bd538b522a16f618b5c32af6	no	7
Warnings:					
Information:					
4	Non Patent Literature	Rosca.pdf	805552 8dbdbe7ba99115e76fb914bc5d7ace249f285676e	no	8
Warnings:					
Information:					
5	Non Patent Literature	Ziebacz_RoyalChemarticle.pdf	692906 99a837528c28d1bda42587d130fe5c86ebec8f82	no	10
Warnings:					
Information:					
6	Non Patent Literature	Kovtyukhova.pdf	1220170 68b61165d0f5107c76c27df5648ed09f88151a09	no	9
Warnings:					
Information:					
7	Non Patent Literature	Andrews.pdf	2092506 b950dd65aeb75c4d07a849c60e13395c0e5201aa	no	8
Warnings:					
Information:					
8	Non Patent Literature	Masrgetts.pdf	258781 8948df96449e3af2b9b5dfb352f9a91bd78c2cd3	no	6
Warnings:					
Information:					

9	Non Patent Literature	Yoong.pdf	3244467 2d6e3055f9f0ed49b71be99326a164388483c616	no	12
Warnings:					
Information:					
10	Non Patent Literature	Biopact_PR.pdf	33187 29ac5a65f27550c13ac5a3ea27d4dc52c4824e56	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	13860602		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.