PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT4230251

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Execution Date
XG SCIENCES IP, LLC	12/14/2016
XG SCIENCES, INC.	12/14/2016

RECEIVING PARTY DATA

Name:	THE DOW CHEMICAL COMPANY
Street Address:	2030 DOW CENTER
City:	MIDLAND
State/Country:	MICHIGAN
Postal Code:	48674

PROPERTY NUMBERS Total: 5

Property Type	Number
Patent Number:	8834959
Application Number:	15332338
Application Number:	15285967
Application Number:	13199086
Application Number:	12587645

CORRESPONDENCE DATA

Fax Number: (616)222-2318

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 6167522000
Email: patents@wnj.com, pschumacher@wnj.com
Correspondent Name: WARNER NORCROSS & JUDD LLP
Address Line 1: 111 LYON STREET NW
Address Line 2: 900 FIFTH THIRD CENTER
Address Line 4: GRAND RAPIDS, MICHIGAN 49503-2487

ATTORNEY DOCKET NUMBER:	017520.171882 (CEK)
NAME OF SUBMITTER:	CHAD E. KLEINHEKSEL
SIGNATURE:	/Chad E. Kleinheksel/
DATE SIGNED:	01/18/2017

Total Attachments: 8
source=SecurityInterest#page1.tif
source=SecurityInterest#page2.tif
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source=SecurityInterest#page8.tif

INTELLECTUAL PROPERTY SECURITY AGREEMENT

Intellectual Property Security Agreement, dated as of December 14, 2016, by XG Sciences IP, LLC, a Michigan limited liability company, of 3101 Grand Oak Drive, Lansing, Michigan 48911 and XG Sciences, Inc., a Michigan corporation, of 3101 Grand Oak Drive, Lansing, Michigan 48911 ("**Debtors**"), in favor of The Dow Chemical Company, of 2030 Dow Center, Midland, Michigan 48674 for itself and as agent for the benefit of all other affiliates of Secured Party (each, an "**Affiliate**") pursuant to the Security Agreement (in such capacity, "**Secured Party**").

W I T N E S S E T H:

WHEREAS, the Debtors are parties to Security Agreements dated as of December 14, 2016 (the "**Security Agreements**"), in favor of the Secured Party pursuant to which the Debtors are required to execute and deliver this Intellectual Property Security Agreement;

NOW, THEREFORE, in consideration of the premises, the Debtors hereby agree with the Secured Party as follows:

SECTION 1. Defined Terms. Unless otherwise defined herein, terms defined in the Security Agreements and used herein have the meaning given to them in the Security Agreements.

SECTION 2. Grant of Security Interest in Intellectual Property Collateral. The Debtors hereby pledge and grant to the Secured Party a lien on and security interest in and to all of its right, title and interest in, to and under all the following Collateral of the Debtors:

(a) Patents of Debtors listed on Schedule A attached hereto ;

(b) Trademarks of Debtors listed on Schedule B attached hereto;

(c) all proceeds of any and all of the foregoing; and

(d) all future patent and trademark application filings in the United States or any other country, of which Debtors shall notify Secured Party on a regular basis, but no less frequently than annually, and descriptions of which Debtor shall promptly add to Schedule A attached hereto or Schedule B attached hereto, as appropriate.

SECTION 3. Security Agreement. The security interest granted pursuant to this Intellectual Property Security Agreement is granted in conjunction with the security interest granted to the Secured Party pursuant to the Security Agreements and Debtors hereby acknowledge and affirm that the rights and remedies of the Secured Party with respect to the security interest in the Patents and Trademarks made and granted hereby are more fully set forth in the Security Agreements, the terms and provisions of which are incorporated by reference

herein as if fully set forth herein. In the event that any provision of this Intellectual Property Security Agreement is deemed to conflict with the Security Agreements, the provisions of the Security Agreements shall control unless the Secured Party shall otherwise determine.

SECTION 4. Termination. Upon the payment in full and termination of the Security Agreements, the Secured Party shall execute, acknowledge and deliver to the Debtors an instrument in writing, prepared by the Debtors, in recordable form releasing the collateral pledge, grant, assignment, lien and security interest in the Patents and Trademarks under this Intellectual Property Security Agreement.

SECTION 5. Counterparts. This Intellectual Property Security Agreement may be executed in any number of counterparts, all of which constitute one and the same instrument, and any party hereto may execute this Intellectual Property Security Agreement by signing and delivering one or more counterparts.

SECTION 6. Governing Law. This Intellectual Property Security Agreement and the transactions contemplated hereby, and all disputes between the parties under or relating to this Intellectual Property Security Agreement or the facts or circumstances leading to its execution, whether in contract, tort or otherwise, shall be construed in accordance with and governed by the laws (including statutes of limitation) of the State of Michigan, without regard to conflict of law principles that would require the application of laws of another jurisdiction.

[Signature page follows.]

IN WITNESS WHEREOF, the Debtors have caused this Intellectual Property Security Agreement to be executed and delivered by its duly authorized officers as of the date first set forth above.

XG SCIENCES IP, LLC

By _____

Its Manager

Debtor

XG SCIENCES, INC.

By _____

Its Chief Executive Officer

Debtor

Accepted and Agreed:

THE DOW CHEMICAL COMPANY

By _____

Its Howard Ungerleider, Chief Financial Officer

Secured Party

SCHEDULE A
TO
INTELLECTUAL PROPERTY SECURITY AGREEMENT

GRANTED PATENTS AND PATENT APPLICATIONS

U.S. Granted Patents

Patent No.	Title
9,472,354	Electrodes for Capacitors from Mixed Carbon Compositions
9,206,051	Mechanical Exfoliation Apparatus
8,715,720	A Cloud Mixer and Method of Minimizing Agglomeration of Particles
9,061,259	A Cloud Mixer and Method of Minimizing Agglomeration of Particles
9,266,078	A Cloud Mixer and Method of Minimizing Agglomeration of Particles

U.S. Patent Applications

Application No.	Title
15/155,558	Process of Dry Milling Particulate Materials
13/686,961	Single Mode Microwave Device for Producing Exfoliated Graphite
14/201,986	Graphene Carbon Compositions
14/488,417	Flexible Resin-Free Composites Containing Graphite & Fillers
14/079,057	Silicon-Graphene Nanocomposites for Electrochemical Applications
62/060,319	LiF-Embedded SiG Powder for Lithium-Ion Battery
62/284,797	Thermal Interface Materials Using Graphene Coated Fillers
15/082,363	Heat Exchanger Elements and Devices

14/931,236	Mechanical Exfoliation Apparatus
14/938,969	Single Mode Microwave Device for Producing Exfoliated Graphite
15/002,454	Mechanical Exfoliation Apparatus
15/013,028	Mechanical Exfoliation Apparatus
15/047,995	Mechanical Exfoliation Apparatus
15/050,496	Mechanical Exfoliation Apparatus
15/018,885	Mechanical Exfoliation Apparatus
15/050,517	Mechanical Exfoliation Apparatus
62/303,612	Graphene Based Coating on Lead Grid for Lead Acid Batteries

Foreign Granted Patents

Country	Patent No.	Title
China	ZL 2012 8 0065778.X	Single Mode Microwave Device for Producing Exfoliated Graphite
China	ZL 2012 8 0052188.3	Cloud Mixer and Method of Minimizing Agglomeration of Particulates

Foreign Patent Applications

Country	Application No.	Title
Taiwan	Based on U.S. Patent Application No. 14/203,608	Electrodes for Capacitors from Mixed Carbon Compositions
China	Based on U.S. Patent No. 9,206,051	Mechanical Exfoliation Apparatus

UPDATED LIST OF PATENTS AND PATENT APPLICATIONS

U.S. Granted Patent

Patent No.	Title
8,834,959	Method for the Preparation of Doped Single Graphene Sheets

U.S. Patent Applications

Patent No.	Title
15/332,338	Flexible Composites Containing Graphite and Fillers
15/285,967	Thermal Interface Materials Using Graphene and Graphene Coated Fillers
13/199,086	PI Coupling Agents for Dispersion of Graphene Nanoplatelets in Polymers
12/587,645	Electrically Conductive, Optically Transparent Films of Exfoliated Graphite Nanoparticles and Methods of Making the Same

SCHEDULE B
TO
INTELLECTUAL PROPERTY SECURITY AGREEMENT

REGISTERED TRADEMARKS AND TRADEMARK APPLICATIONS

Registered Trademarks

Country	Mark	Registration No.
United States	XG LEAF	4652615
United States	XG SCIENCES THE MATERIAL DIFFERENCE	4316435
United States	XG SCIENCES	4001356
United States	XGNP	3493218

Trademark Applications

Country	Mark	Application No.
United States	XG TIM	87153373
United States	XG SIG	87153369
United States	GNP	87089742