505104476 09/20/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 EPAS ID: PAT5151235 Stylesheet Version v1.2

 SUBMISSION TYPE:
 NEW ASSIGNMENT

 NATURE OF CONVEYANCE:
 ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
HUIFANG SHAO	09/11/2018
JOSEPH W. ROOS	09/11/2018
JOSEPH E. REMIAS	09/11/2018

RECEIVING PARTY DATA

Name:	AFTON CHEMICAL CORPORATION
Street Address:	500 SPRING STREET
City:	RICHMOND
State/Country:	VIRGINIA
Postal Code:	23219

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	16121236	

CORRESPONDENCE DATA

Fax Number: (404)541-3195

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: (404)815-6500

Email: sharvey@kilpatricktownsend.com

Correspondent Name: KILPATRICK TOWNSEND & STOCKTON LLP Address Line 1: 1100 PEACHTREE STREET NE, SUITE 2800

Address Line 2: MAILSTOP: IP DOCKETING - 22
Address Line 4: ATLANTA, GEORGIA 30309

ATTORNEY DOCKET NUMBER: 060691-1096696

NAME OF SUBMITTER: SANDEE HARVEY

SIGNATURE: /SANDEE HARVEY/

DATE SIGNED: 09/20/2018

Total Attachments: 5

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PATENT 505104476 REEL: 046931 FRAME: 0448

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ASSIGNMENT (Patent Application)

We, the undersigned, have invented certain inventions and improvements disclosed in a utility non-provisional patent application entitled

"GASOLINE PARTICULATE FILTERS WITH HIGH INITIAL FILTERING EFFICIENCY AND METHODS OF MAKING SAME,"

filed with the U.S. Patent & Trademark Office on September 4, 2018

and assigned Application No. 16/121,236.

For good and valuable consideration, we:

- 1. Agree to assign, transfer, convey, and sell, hereby assign, transfer, convey, and sell and have assigned, transferred, conveyed, and sold to Afton Chemical Corporation, a corporation of the State of Delaware having a principal place of business at 500 Spring Street, Richmond, Virginia 23219 ("Assignee"), the entire right, title, and interest in and to:
 - (a) all intellectual property (including, without limitation, any innovation, information, invention, discovery, product, process, work or design) disclosed, embodied, shown, or claimed in the above-referenced patent application, implicitly or explicitly;
 - (b) the above-referenced patent application, and all applications based in whole or in part upon the above-referenced patent application, including, without limitation, all applications that are a provisional, non-provisional, design, divisional, continuation, continuation-in-part, registration, utility model, industrial design, reissue, renewal, substitute, extension, reexamination, post-grant review, inter partes review, supplemental examination or non-U.S. patent application or application for other rights based in whole or in part on the above-referenced patent application;
 - (c) the right to claim priority to the above-referenced patent application, and any and all applications referenced in subsection (b); and
 - (d) all patents (including, without limitation, all U.S. and non-U.S. patents, registrations, utility models, industrial designs, design patents, counterparts, continuations, continuations-in-part, divisionals, reissues, renewals, substitutes, extensions, reexaminations, post-grant reviews, inter partes reviews and supplemental examinations) that are granted or issued upon, or that claim priority to, any and all applications described in (b) of this paragraph or that disclose or claim intellectual property described in (a) of this paragraph, in whole or in part; and
 - (e) all claims for damages by reason of past infringement of any rights under the applications or patents described in (a), (b) or (c) of this paragraph (including

ASSIGNMENT U.S. Application No. 16/121,236 Attorney Docket No. 060691-1096696 Page 2 of 5

provisional rights to reasonable royalties pursuant to 35 U.S.C. §154(d)) and the right to sue for and collect such damages and royalties for Assignee's own use.

- 2. Authorize and request the U.S. Patent and Trademark Office or any other U.S. or non-U.S. agency to issue to the Assignee any and all patent(s), or other rights or documents, resulting from the intellectual property, patent application(s) and patents described in paragraph 1 of this Assignment.
- 3. Agree to sign all papers and documents, including without limitation, applications, declarations, oaths and petitions, and, at the Assignee's expense, perform any other acts that are necessary in connection with prosecution of patent application(s) or intellectual property described in paragraph 1 of this Assignment and the enforcement of patent(s) or other rights resulting from such patent application(s) or intellectual property.
- 4. Agree that the terms, covenants, and conditions of this Assignment shall inure to the benefit of the Assignee, its successors, assigns and other legal representative, and shall be binding upon us, as well as our heirs, legal representatives, and assigns.
- 5. Promise and affirm that we have not entered, and will not enter, into any assignment, contract, or understanding that conflicts with this Assignment.

Signed on the dates indicated beside our signatures.

Signature:	ng Shao	Date	: Seji	11th W18
STATE OF <u>\`</u>	rginia			, 41

Before me, a Notary Public in and for the State of Nivaina, on this day of September, 20 W, personally appeared Huifang Shao, who being duly sworn, signed and acknowledged the foregoing Assignment as his free act and deed.

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Brench J. Take

NOTARY PUBLIC

My Commission Expires: September 30,20/9

my wormission no. 144749

ASSIGNMENT U.S. Application No. 16/121,236 Attorney Docket No. 060691-1096696 Page 3 of 5

Signature:

Date: Sent 11,7018

Joseph W. Roos

STATE OF Viginic

, 20 K, personally appeared Joseph W. Roos, who being duly sworn, signed and acknowledged the foregoing Assignment as his free act and deed.

My Commission Expires: & Ferber 30, 30/9

rey com ission no. 140749

ASSIGNMENT U.S. Application No. 16/121,236 Attorney Docket No. 060691-1096696 Page 4 of 5

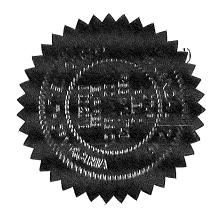
Signature:

Date: 9/11/1018

Joseph E. Remias

STATE OF Viginia

SePtember, 20 14, personally appeared Joseph E. Remias, who being duly sworn, signed and acknowledged the foregoing Assignment as his free act and deed.



Brand 5. Toke

My Commission Expires: September 30,2019
My commission To 146749

ASSIGNMENT U.S. Application No. 16/121,236 Attorney Docket No. 060691-1096696 Page 5 of 5

Assignee hereby accepts the foregoing assignment:

Afton Chemical Corporation

Signature

Name: Leah Robinson

Title: Assistant IP Commsel

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PATENT REEL: 046931 FRAME: 0454

Date: 9/11/18

RECORDED: 09/20/2018