

Electronic Patent Application Fee Transmittal

Application Number:	15974343			
Filing Date:	08-May-2018			
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY			
First Named Inventor/Applicant Name:	Edwin S. Olson			
Filer:	Edward James Sandor/Beth Moon			
Attorney Docket Number:	4820.001US9			
Filed as Large 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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Total in USD (\$)				400

Electronic Acknowledgement Receipt

EFS ID:	37005358
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
First Named Inventor/Applicant Name:	Edwin S. Olson
Customer Number:	21186
Filer:	Edward James Sandor/Beth Moon
Filer Authorized By:	Edward James Sandor
Attorney Docket Number:	4820.001US9
Receipt Date:	28-AUG-2019
Filing Date:	08-MAY-2018
Time Stamp:	14:50:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$400
RAM confirmation Number	E20198RE50560665
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		signed4820_001US9_NFOA_TD_SIDS_POA.pdf	3749334	yes	22
			3355db39c8a7c416e143b549b52166d289d27972		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal Letter		1	1	
	Amendment/Req. Reconsideration-After Non-Final Reject		2	2	
	Claims		3	8	
	Applicant Arguments/Remarks Made in an Amendment		9	15	
	Miscellaneous Incoming Letter		16	17	
	Information Disclosure Statement (IDS) Form (SB08)		18	18	
	Terminal Disclaimer Filed		19	19	
	Power of Attorney		20	20	
	Assignee showing of ownership per 37 CFR 3.73		21	22	
	Warnings:				
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	31905	no	2
			4806a2ba89848165e078ee891e307b51c4ba62fe		
Warnings:					
Information:					
Total Files Size (in bytes):			3781239		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Edwin S. Olson et al.

Title: SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

Docket No.: 4820.001US9

Filed: May 8, 2018

Examiner: Amber Orlando

Customer No.: 21186

Serial No.: 15/974,343

Due Date: November 21, 2019

Group Art Unit: 1776

Confirmation No.: 1072

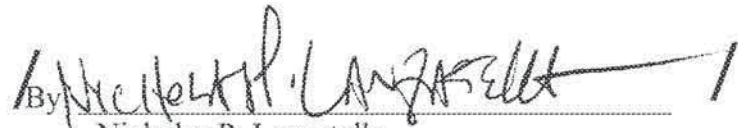
Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the following attached items (as indicated with an "X"):

- ☒ Amendment and Response under 37 C.F.R. § 1.111 (14 pgs.)
- ☒ Information Disclosure Statement (2 pgs.), Form 1449 (1 pg.) Copies of Cited References (6).
- ☒ Authorization to charge Deposit Account 19-0743 in the amount of \$240.00 to cover the fee for consideration of Information Disclosure Statement under 37 C.F.R. § 1.97(c).
- ☒ Terminal Disclaimer (1 pg.)
- ☒ Authorization to charge Deposit Account 19-0743 in the amount of \$160.00 to cover the fee for the Terminal Disclaimer
- ☒ Power of Attorney (1 pg.)
- ☒ Statement Under 37 CFR 3.73(c) (2 pgs.)

If not provided for in a separate paper filed herewith, please consider this a **PETITION FOR EXTENSION OF TIME** for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743. If applicable, any papers or fees supplied herewith are considered to be timely filed pursuant to 37 C.F.R. § 1.7(a), the response period falling on a Federal Holiday, Saturday or Sunday being extended to the next succeeding business day.

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By 
Nicholas P. Lanzatella
Reg. No. 63,803

Electronic Acknowledgement Receipt

EFS ID:	37005422
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
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Time Stamp:	14:53:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	npl1_4820001U10_OARN_0823 2019.pdf	1415213 82e99d7aeec8913bcc69c1142a40bad6c69 7395c	no	14

Warnings:

Exhibit 2044

Page 643

Information:					
2	Non Patent Literature	npl2_4820007US3_FOAR_0802 2019.pdf	1878950	no	18
			641caeec846be5b8f4f82836921e3fd4838bba89		
Warnings:					
Information:					
3	Non Patent Literature	npl3_4820003US2_NOAR_0731 2019.pdf	1126931	no	7
			f2c93637028800514d0b15699722fab44e8a92f6		
Warnings:					
Information:					
4	Non Patent Literature	npl4_4820003US2_AARN_07-1 6-19.pdf	118986	no	7
			9788f7869e88c1fce840d36db4710cf0077e1625		
Warnings:					
Information:					
5	Non Patent Literature	npl5_4820001US7_AARF_07-1 0-19.pdf	4606138	no	57
			a496173b7f14b930c3339aa234eeabc004875c7a		
Warnings:					
Information:					
6	Non Patent Literature	npl6_4820001U10_AARF_07-1 0-19.pdf	5515022	no	80
			1f63566324a580614d6b32dbd34307c00e5419e4		
Warnings:					
Information:					
Total Files Size (in bytes):			14661240		

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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 15/974,343		Filing Date 05/08/2018		☐ To be Mailed			
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO											
APPLICATION AS FILED - PART I											
		(Column 1)	(Column 2)								
FOR		NUMBER FILED	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), (l), 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 \$100 =							
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *		x \$460 =							
☐ 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											
		(Column 1)	(Column 2)	(Column 3)							
AMENDMENT	08/28/2019	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)				
	Total (37 CFR 1.16(i))	* 29	Minus ** 29	= 0	x \$100 =		0				
	Independent (37 CFR 1.16(h))	* 3	Minus *** 3	= 0	x \$460 =		0				
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE		0			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)				
	Total (37 CFR 1.16(i))	*	Minus **	=	x \$0 =						
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x \$0 =						
	☐ 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.						LIE					
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/BRENDA V HARRISON/					
*** 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.											

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.



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
15/974,343	05/08/2018	Edwin S. Olson	4820.001US9

21186
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

CONFIRMATION NO. 1072
POA ACCEPTANCE LETTER



Date Mailed: 08/30/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/28/2019.

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/

Application Number * 15/974,343 *	Application/Control No. 15/974,343	Applicant(s)/Patent under Reexamination Olson et al.	
	Examiner ORLANDO, AMBER ROSE	Art Unit 1776	
Document Code - DISQ		Internal Document - DO NOT MAIL	

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed: <u>28 August 2019</u>	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
/JEAN PROCTOR/ Technology Center: OPLC Telephone: (571)272-1040

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

Application Number	15974343
Filing Date	2018-05-08
First Named Inventor	Edwin S. Olson
Art Unit	1776
Examiner Name	Amber Orlando
Attorney Docket Number	4820.001US9

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	5556447		1996-09-17	Srinivasachar, Srivats, et al.	
	2	7361209		2008-04-22	Durham, Michael D, et al.	

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

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U.S.PATENT APPLICATION PUBLICATIONS

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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	20020114749	A1	2002-08-22	Cole, Jerald Alan	
	2	20030113239	A1	2003-06-19	Pahlman, John E, et al.	
	3	20030161771	A1	2003-08-28	Oehr, Klaus H	
	4	20040244657	A1	2004-12-09	Srinivasachar, Srivats, et al.	

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

Application Number	15974343
Filing Date	2018-05-08
First Named Inventor	Edwin S. Olson
Art Unit	1776
Examiner Name	Amber Orlando
Attorney Docket Number	4820.001US9

5	20070259781	A1	2007-11-08	Sinha, Rabindra K
6	20140099244	A1	2014-04-10	Olson, Edwin S, et al.

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

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	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.

NON-PATENT LITERATURE DOCUMENTS

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	"Application Serial No. 16/509,071, Non Final Office Action mailed 09-11-19", 21 pgs.	
	2	"Application Serial No. 14/712,558, Non Final Office Action mailed 09-12-19", 15 pgs.	

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

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.

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

Application Number	15974343
Filing Date	2018-05-08
First Named Inventor	Edwin S. Olson
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Examiner Name	Amber Orlando
Attorney Docket Number	4820.001US9

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	15974343
Filing Date	2018-05-08
First Named Inventor	Edwin S. Olson
Art Unit	1776
Examiner Name	Amber Orlando
Attorney Docket Number	4820.001US9

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	/Nicholas P. Lanzatella.	Date (YYYY-MM-DD)	2019-09-13
Name/Print	Nicholas P. Lanzatella	Registration Number	63,803

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 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 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.

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SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
Total in USD (\$)				240

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Time Stamp:	17:37:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$240
RAM confirmation Number	E20199CH37350076
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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)	15974343_ids_09-13-2019.pdf	626706	no	5
			138f9b4b892b9f9527e796da45a3f756186d3d0c		
Warnings:					
Information:					
2	Non Patent Literature	0001_2_npl_4820001u11_oarn pe_20190911_f.pdf	919625	no	21
			6f248de285471acc89924d9d49dc623346f33ba8		
Warnings:					
Information:					
3	Non Patent Literature	0002_2_npl_4820001us7_oarn _09122019_f.pdf	707212	no	15
			2a90ed576493338d3ef4a9fd7963c45742de03af		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30746	no	2
			6b5d945dddb4c2cab3d21dc6153523710bb11f30		
Warnings:					
Information:					
Total Files Size (in bytes):			2284289		

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.



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

21186 7590 09/17/2019
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER

ORLANDO, AMBER ROSE

ART UNIT

PAPER NUMBER

1776

DATE MAILED: 09/17/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/974,343	05/08/2018	Edwin S. Olson	4820.001US9	1072

TITLE OF INVENTION: SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	12/17/2019

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

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.

21186 7590 09/17/2019
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/974,343	05/08/2018	Edwin S. Olson	4820.001US9	1072

TITLE OF INVENTION: SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	12/17/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
ORLANDO, AMBER ROSE	1776	423-210000

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 03-09 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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.

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.

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. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/974,343	05/08/2018	Edwin S. Olson	4820.001US9	1072
21186	7590	09/17/2019	EXAMINER	
SCHWEGMAN LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			ORLANDO, AMBER ROSE	
			ART UNIT	PAPER NUMBER
			1776	
DATE MAILED: 09/17/2019				

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 30 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.

Notice of Allowability**Application No.**

15/974,343

Applicant(s)

Olson et al.

Examiner

AMBER R ORLANDO

Art Unit

1776

AIA (FITF) 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 the correspondence filed 08/28/2019.
☐ 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 27-55. 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. _____.
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 _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material _____.
4. ☐ Interview Summary (PTO-413),
Paper No./Mail Date. _____.
5. ☒ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/AMBER R ORLANDO/
Primary Examiner, Art Unit 1776

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Terminal Disclaimer

The terminal disclaimer filed on 08/28/2019 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 7,435,286; 8,168,147; 8,512,655; 8,821,819; 9,757,689; 9,468,886; 8,652,235; 15/295,594; 15/589,359; 15/853,029; 14/712,558; 15/651,970; 15/358,114; 15/978,760 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMBER ROSE ORLANDO whose telephone number is (571)270-3149. The examiner can normally be reached on Monday-Thursday 7:00-5:30.

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, Duane Smith can be reached on (571)272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

Art Unit: 1776

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.

AMBER ROSE. ORLANDO
Primary Examiner
Art Unit 1776

/AMBER R ORLANDO/
Primary Examiner, Art Unit 1776

Search Notes 	Application/Control No. 15/974,343	Applicant(s)/Patent Under Reexamination Olson et al.
	Examiner AMBER R ORLANDO	Art Unit 1776

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Text Search (SEE EAST SEARCH HISTORY)	07/23/2018	AO
IDS Search (EAST and DAV)	07/23/2018	AO
Inventor Search (EAST)	07/23/2018	AO
Inventor Search (EAST)	10/24/2018	AO
Text Search (SEE EAST SEARCH HISTORY)	10/24/2018	AO
Text Search (SEE EAST SEARCH HISTORY)	01/07/2019	AO
IDS Search (DAV and EAST)	08/17/2019	AO

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	SEE EAST SEARCH HISTORY	09/09/2019	AO

/AMBER R ORLANDO/ Primary Examiner, Art Unit 1776	
--	--

Issue Classification 	Application/Control No. 15/974,343	Applicant(s)/Patent Under Reexamination Olson et al.
	Examiner AMBER R ORLANDO	Art Unit 1776

CPC						
Symbol					Type	Version
B01D	/	53	/	64	F	2013-01-01
B01D	/	53	/	10	I	2013-01-01
B01J	/	20	/	20	I	2013-01-01
B01J	/	20	/	22	I	2013-01-01
B01D	/	2253	/	102	A	2013-01-01
B01D	/	2257	/	602	A	2013-01-01
Y10S	/	95	/	901	A	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/				

NONE (Assistant Examiner)		Total Claims Allowed: 29	
/AMBER R ORLANDO/ Primary Examiner, Art Unit 1776 (Primary Examiner)		09 September 2019 (Date)	O.G. Print Claim(s) 27
			O.G. Print Figure 11

Issue Classification 	Application/Control No. 15/974,343	Applicant(s)/Patent Under Reexamination Olson et al.
	Examiner AMBER R ORLANDO	Art Unit 1776

INTERNATIONAL CLASSIFICATION					
CLAIMED					
B01D	/	53	/	64	
B01D	/	53	/	10	
B01J	/	20	/	20	
B01J	/	20	/	22	
NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	29	
/AMBER R ORLANDO/ Primary Examiner, Art Unit 1776	09 September 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	27	11

Issue Classification 	Application/Control No. 15/974,343	Applicant(s)/Patent Under Reexamination Olson et al.
	Examiner AMBER R ORLANDO	Art Unit 1776

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

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 29	
/AMBER R ORLANDO/ Primary Examiner, Art Unit 1776 (Primary Examiner) _____ (Date) 09 September 2019		O.G. Print Claim(s) 27	O.G. Print Figure 11

Modified form PTO/SB/08A(04-07) OMB 651-0031
US Patent & 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.

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)	<i>Complete if Known</i>	
	Application Number	15/974,343
	Filing Date	May 8, 2018
	First Named Inventor	Edwin S. Olson
	Group Art Unit	1776
	Examiner Name	Amber Orlando
Sheet 1 of 1		Attorney Docket No: 4820.001US9

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document
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FOREIGN PATENT DOCUMENTS

Examiner Initial *	Foreign Document Number	Publication Date	Name of Patentee or Applicant of cited Document	T 1
--------------------	-------------------------	------------------	---	-----

OTHER DOCUMENTS – NON PATENT LITERATURE DOCUMENTS

Examiner Initial *	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T 1
	"Application Serial No. 14/712,558, Response filed 07-10-19 to Final Office Action mailed - 1-11-19", 57 pgs.	
	"Application Serial No. 15/295,594, Final Office Action mailed 08-02-19", 18 pgs	
	"Application Serial No. 15/589,359, Notice of Allowance mailed 07-31-19", 7 pgs	
	"Application Serial No. 15/589,359, Response filed 07-16-19 to Non Final Office Action mailed 06-21-19", 7 pgs.	
	"Application Serial No. 15/997,091, Non Final Office Action mailed 08-23-19", 14 pgs	
	"Application Serial No. 15/997,091, Response filed 07-10-19 to Final Office Action mailed 01-11-19", 80 pgs.	

EXAMINER

/AMBER R ORLANDO/

DATE CONSIDERED

09/09/2019

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant is to place a check mark here if English language Translation is attached

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.R.O/

Exhibit 2044

Page 670

S/N 15/974,343

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Edwin S. Olson et al.	Examiner:	Amber Orlando
Serial No.:	15/974,343	Group Art Unit:	1776
Filed:	May 8, 2018	Docket:	4820.001US9
Customer No.:	21186	Confirmation No.:	1072
Title:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY		

COMMUNICATION RE: UPDATE TO APPLICATION DATA SHEET

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

Applicants hereby request that the information provided on the Application Data Sheet filed in the above-referenced application on May 8, 2018, be updated with the information as provided on the enclosed marked up Application Data Sheet.

We therefore submit a marked up copy of the Application Data Sheet which shows an update to the Applicant Information and the Domestic Benefit/National Stage Information.

Once this request is entered, it is respectfully requested that the USPTO update their records and provide confirmation of the above request by way of an Updated Filing Receipt.

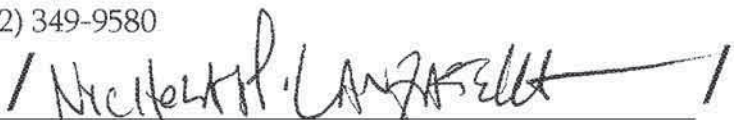
It is believed that no fee is required to fulfill this request, however, if necessary, please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

Schwegman Lundberg & Woessner, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9580

Date 09/27/2019

By



Nicholas P. Lanzatella
Reg. No. 63,803

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

SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

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 15/974,343,
filed on May 8, 2018.

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 (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: John H. Pavlish

Date (Optional): 9-27-2019

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form.
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.

S/N 15/974,343

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Edwin S. Olson et al.	Examiner:	Amber Orlando
Serial No.:	15/974,343	Group Art Unit:	1776
Filed:	May 8, 2018	Docket:	4820.001US9
Customer No.:	21186	Confirmation No.:	1072
Title:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY		

COMMUNICATION RE: LATE SUBMISSION OF DECLARATION

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

In compliance with 37 CFR 1.63, we submit the Signed Declaration. Corresponding fees with regard to the late submission were paid with the filing of the application on May 8, 2018 therefore applicants believe no additional fees are due at this time.

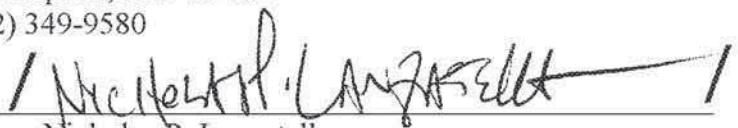
Applicants assume the application is now in proper order and in condition for allowance. Please direct any inquiries to the undersigned at (612) 349-9580. If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

Schwegman Lundberg & Woessner, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9580

Date 09/27/2019

By



Nicholas P. Lanzatella
Reg. No. 63,803

NPL:CMG:dmj

S/N 15/974,343

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Edwin S. Olson et al.	Examiner:	Amber Orlando
Serial No.:	15/974,343	Group Art Unit:	1776
Filed:	May 8, 2018	Docket No.:	4820.001US9
Customer No.:	21186	Confirmation No.:	1072
Title:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY		

COMMUNICATION RE: FEE ADDRESS

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

In response to the Notice of Allowance and Issue Fee Due, please record the Fee Address under the provisions of 37 CFR 1.363 as the following:

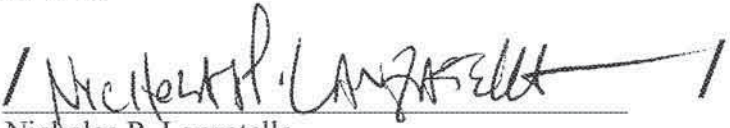
Customer Number 21186

Please direct any inquiries to the undersigned attorney at (612) 349-9580.

Respectfully submitted,

SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 349-9580

Date 09/27/2019

By 
Nicholas P. Lanzatella
Reg. No. 63,803

NPL:CMG:dmj

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

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.

21186 7590 09/17/2019
SCHWEGMAN LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/974,343	05/08/2018	Edwin S. Olson	4820.001US9	1072

TITLE OF INVENTION: SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	12/17/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
ORLANDO, AMBER ROSE	1776	423-210000

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 03-09 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 Schwegman Lundberg
2 & Woessner, P.A.
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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Midwest Energy Emissions Corp.

Lewis Center, OH

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 19-0743

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
☐ Applicant asserting small entity status. See 37 CFR 1.27
☐ Applicant changing to regular undiscounted fee status.

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.
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.
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

Nicholas P. Lanzatella

Date 09/27/2019

Typed or printed name Nicholas P. Lanzatella

Registration No. 63,803

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Edwin S. Olson et al.

Title: SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY

Docket No.: 4820.001US9
Filed: May 8, 2018
Examiner: Amber Orlando
Customer No.: 21186

Serial No.: 15/974,343
Due Date: December 17, 2019
Group Art Unit: 1776
Confirmation No.: 1072

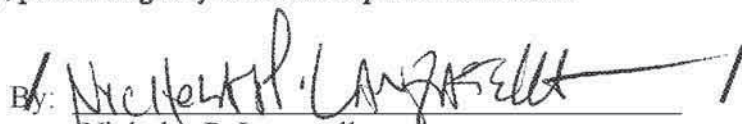
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the attached:

- ☒ Authorization to charge Deposit 19-0743 in the amount of \$1,000.00 to cover the Large Entity Issue Fee Payment.
- ☒ Issue Fee Transmittal (Form PTOL-85).
- ☒ Communication Re: Fee Address (1 page).
- ☒ Communication Re: Late Submission of Declaration (1 pg.).
- ☒ Signed Declaration (1 pg.).
- ☒ Communication Re: Update to Application Data Sheet (1 Pg.).
- ☒ Marked Up Application Data Sheet (6 Pgs.).
- ☒ Statement Under 37 CFR 3.73 (c) (2 pgs.)
- ☒ Copy of Signed Assignment (20 pgs.)

It is believed that no additional fee is required. However, if necessary, please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

Schwegman Lundberg & Woessner, P.A.
Customer No: 21186
NPL:CMG:dmj

By: 
Nicholas P. Lanzatella
Reg. No. 63,803

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being transmitted using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 27th day of September, 2019.

Diana Johnson
Name

/Diana Johnson/
Signature

Electronic Patent Application Fee Transmittal

Application Number:	15974343			
Filing Date:	08-May-2018			
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY			
First Named Inventor/Applicant Name:	Edwin S. Olson			
Filer:	James Lee Shands/Diana Johnson			
Attorney Docket Number:	4820.001US9			
Filed as Large 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	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt

EFS ID:	37303175
Application Number:	15974343
International Application Number:	
Confirmation Number:	1072
Title of Invention:	SORBENTS FOR THE OXIDATION AND REMOVAL OF MERCURY
First Named Inventor/Applicant Name:	Edwin S. Olson
Customer Number:	21186
Filer:	James Lee Shands/Diana Johnson
Filer Authorized By:	James Lee Shands
Attorney Docket Number:	4820.001US9
Receipt Date:	27-SEP-2019
Filing Date:	08-MAY-2018
Time Stamp:	15:15:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$1000
RAM confirmation Number	E20199QF16384985
Deposit Account	190743
Authorized User	Diana Johnson

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

Exhibit 2044

Page 679

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		4820001US9IssuefeeUADSDecSigned.pdf	18385717 88df3dc69c9fac1f1da6286c5d5119555191fed9	yes	35
Multipart Description/PDF files in .zip description					
	Document Description		Start	End	
	Miscellaneous Incoming Letter		15	35	
	Assignee showing of ownership per 37 CFR 3.73		13	14	
	Application Data Sheet		7	12	
	Request for Corrected Filing Receipt		6	6	
	Oath or Declaration filed		5	5	
	Miscellaneous Incoming Letter		4	4	
	Miscellaneous Incoming Letter		3	3	
	Issue Fee Payment (PTO-85B)		2	2	
	Transmittal Letter		1	1	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30340 84f93599797404a5824068a76f28d4f922913f39	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			18416057		

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.

CONFIRMATORY ASSIGNMENT

THIS CONFIRMATORY ASSIGNMENT is made by Edwin S. Olson residing at 223 Circle Hills Dr., Grand Forks, ND 58201 ("Assignor"), to Energy and Environmental Research Center Foundation, a North Dakota nonprofit corporation having a business address of 15 N. 23rd Street, Stop 9018, Grand Forks, North Dakota, 58202-9018 ("Assignee") and is effective as of the date this Confirmatory Assignment is executed by Assignor.

WHEREAS, Assignor has invented the inventions disclosed in the patents and patent applications listed in Exhibit A attached (collectively, and including all such inventions and all patents and patent applications for such inventions that have now been, or may in the future be, filed and/or granted for such inventions, including without limitation those patents and patent applications listed in Exhibit A, "Inventions") and, for good and valuable consideration, has agreed to assign, and has assigned, all of Assignor's right, title and interest in and to the Inventions to Assignee; and

WHEREAS, Assignor desires to confirm and assure the assignment, sale and transfer to Assignee of any and all right, title, and interest Assignor has in the Inventions; and

WHEREAS, this Confirmatory Assignment confirms that all Inventions listed in Exhibit A belong exclusively to Assignee and that Assignor has assigned, sold and transferred to Assignee, and hereby further assigns, sells and transfers to Assignee, without any requirement of further consideration, the entire right, title and interest in and to the Inventions, in the United States and its territorial possessions, and in all foreign countries, including without limitation all rights to claim priority in and to any and all improvements which are disclosed in the Inventions, and that upon the request of the Assignee, Assignor will take such further actions, including without limitation execution and delivery of instruments of conveyance, as may be appropriate to give full and proper effect to such assignment.

NOW THEREFORE, in consideration of the foregoing premises, the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby assigns, sells and transfers to Assignee Assignor's entire right, title and interest in and to the Inventions, in the United States and its territorial possessions, and in all foreign countries, including without limitation: (1) all rights to claim priority in and to the Inventions and/or any and all improvements which are disclosed in the Inventions; (2) all rights with respect to the Inventions, including all United States patents and/or other

governmental grants and/or issuances that may be granted with respect to the Inventions and/or from any direct and/or indirect divisionals, continuations, continuations-in-part and/or other patent applications claiming priority rights from the Inventions; (3) all reissues, reexaminations, extensions and/or registrations of the foregoing; (4) all non-United States patents, patent applications and/or counterparts relating to the foregoing, including without limitation certificates of invention, utility models, industrial design protection, design patent protection and other governmental grants and/or issuances, and including the right to file United States and/or foreign applications directly in the name of Assignee, its successors and assigns; (5) all causes of action and/or remedies related to the foregoing (including without limitation, the right to sue for past, present and/or future infringement, misappropriation and/or violation of rights related to any of the foregoing and the right to collect royalties and/or other payments under or on account of any of the foregoing); and, (6) any and all other rights and/or interests arising out of, in connection with and/or in relation to the foregoing.

Assignor hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Confirmatory Assignment.

Assignor agrees now, and at any time and from time to time in the future, upon request of Assignee, Assignee's successors, legal representatives and/or assigns, and at Assignee's expense, to take, execute, acknowledge, and deliver all such further acts and deeds, assignments, instruments of transfer or conveyance, registrations for assignments, powers of attorney, declarations and/or assurances as may be required for the assigning, selling, transferring, assuring and confirming to Assignee, and Assignee's successors and assigns, and/or for aiding and assisting in collecting and reducing to possession, the rights assigned, sold and transferred under this Confirmatory Assignment, to participate in proceedings regarding such rights (including without limitation, any litigation and/or patent office proceedings) and/or to or perfect and/or defend title to such rights.

Assignor requests the respective patent office or governmental agency in each jurisdiction to issue any and all patents, certificates of invention, utility models and/or other governmental grants and/or issuances that may be granted upon the rights assigned, sold and transferred under this Confirmatory Assignment in the name of the Assignee, as the assignee to the entire interest therein.

The terms and conditions of this Confirmatory Assignment will inure to the benefit of Assignee, and Assignee's successors, legal representatives and assigns, and will be binding upon Assignor, and Assignor's successors, legal representatives and assigns.

By: Edwin S. Olson
(Edwin S. Olson, Signature *MUST* be attested)

ATTESTATION

ATTESTATION OF SIGNATURE PURSUANT TO 28 U.S.C. 1746

The undersigned witnessed the signature of Edwin S. Olson to the above Confirmatory Assignment and makes the following statements:

1. I am over the age of 18 and competent to testify as to the facts in this Attestation block if called upon to do so.
2. Edwin S. Olson is personally known to me (or proved to me on the basis of satisfactory evidence) and appeared before me on August 25, 2014 to execute the above Confirmatory Assignment.
3. Edwin S. Olson subscribed to the above Confirmatory Assignment.

I declare under penalty of perjury under the laws of the United States of America that the statements made in the three (3) numbered paragraphs immediately above are true and correct.

EXECUTED on August 25, 2014 (date)

James R. Duran
Print Name: JAMES R. DURAN

Exhibit A

1. U.S. Patent No. 7,435,286, issued October 14, 2008, titled "Sorbents for the Oxidation and Removal of Mercury"
2. U.S. Patent No. 7,615,101, issued November 10, 2009, titled "High Energy Dissociation for Mercury Control Systems"
3. U.S. Patent No. 7,628,969, issued December 8, 2009, titled "Multifunctional Abatement of Air Pollutants in Flue Gas"
4. U.S. Patent No. 8,168,147, issued May 1, 2012, titled "Sorbents for the Oxidation and Removal of Mercury"
5. U.S. Patent No. 8,173,566, issued May 8, 2012, titled "Process for Regenerating a Spent Sorbent"
6. U.S. Patent No. 8,312,822, issued November 20, 2012, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"
7. U.S. Patent No. 8,440,585, issued May 14, 2013, titled "Process for Regenerating a Spent Sorbent"
8. U.S. Patent No. 8,512,655, issued August 20, 2013, titled "Sorbents for the Oxidation and Removal of Mercury"
9. U.S. Patent No. 8,652,235, issued February 18, 2014, titled "Sorbents for the Oxidation and Removal of Mercury"
10. U.S. Patent No. 8,807,056, issued August 19, 2014, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"
11. U.S. Patent Application Serial No. 13/453,274, filed on April 23, 2012, titled "Carbon Nanocomposite Sorbent and Methods of Using the Same for Separation of One or More Materials from a Gas Stream"
12. U.S. Patent Application Serial No. 13/544,971, filed on July 9, 2012, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"
13. U.S. Patent Application Serial No. 13/966,768, filed on August 14, 2013, titled "Sorbents for the Oxidation and Removal of Mercury"
14. U.S. Patent Application Serial No. 14/102,896, filed on December 11, 2013, titled "Sorbents for the Oxidation and Removal of Mercury"
15. U.S. Patent Application Serial No. 14/318,270, filed on June 27, 2014, titled "Sorbents for the Oxidation and Removal of Mercury"

16. U.S. Patent Application Serial No. 14/195,360, filed on March 6, 2013, titled "Activated Carbon Sorbent Including Nitrogen and Methods of Using the Same"

17. U.S. Patent Application Serial No. 14/446,992, filed on July 30, 2014, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"

18. U.S. Provisional Patent Application Serial No. 60/605,640, filed on August 30, 2004, titled "Sorbents for the Oxidation and Removal of Mercury"

19. U.S. Provisional Patent Application Serial No. 60/464,868, filed on April 23, 2003, titled "Process for Regenerating a Spent Sorbent"

20. U.S. Provisional Patent Application Serial No. 60/947,543, filed on July 2, 2007, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"

21. U.S. Provisional Patent Application Serial No. 61/773,549, filed on March 6, 2013, titled "Activated Carbon Sorbent Including Nitrogen and Methods of Using the Same"

CONFIRMATORY ASSIGNMENT

THIS CONFIRMATORY ASSIGNMENT is made by John H. Pavlish residing at 42204 210th St SW, East Grand Forks, MN ("Assignor"), to Energy and Environmental Research Center Foundation, a North Dakota nonprofit corporation having a business address of 15 N. 23rd Street, Stop 9018, Grand Forks, North Dakota, 58202-9018 ("Assignee") and is effective as of the date this Confirmatory Assignment is executed by Assignor.

WHEREAS, Assignor has invented the inventions disclosed in the patents and patent applications listed in Exhibit A attached (collectively, and including all such inventions and all patents and patent applications for such inventions that have now been, or may in the future be, filed and/or granted for such inventions, including without limitation those patents and patent applications listed in Exhibit A, "Inventions") and, for good and valuable consideration, has agreed to assign, and has assigned, all of Assignor's right, title and interest in and to the Inventions to Assignee; and

WHEREAS, Assignor desires to confirm and assure the assignment, sale and transfer to Assignee of any and all right, title, and interest Assignor has in the Inventions; and

WHEREAS, this Confirmatory Assignment confirms that all Inventions listed in Exhibit A belong exclusively to Assignee and that Assignor has assigned, sold and transferred to Assignee, and hereby further assigns, sells and transfers to Assignee, without any requirement of further consideration, the entire right, title and interest in and to the Inventions, in the United States and its territorial possessions, and in all foreign countries, including without limitation all rights to claim priority in and to any and all improvements which are disclosed in the Inventions, and that upon the request of the Assignee, Assignor will take such further actions, including without limitation execution and delivery of instruments of conveyance, as may be appropriate to give full and proper effect to such assignment.

NOW THEREFORE, in consideration of the foregoing premises, the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby assigns, sells and transfers to Assignee Assignor's entire right, title and interest in and to the Inventions, in the United States and its territorial possessions, and in all foreign countries, including without limitation: (1) all rights to claim priority in and to the Inventions and/or any and all improvements which are disclosed in the Inventions; (2) all rights with respect to the Inventions, including all United States patents and/or other

governmental grants and/or issuances that may be granted with respect to the Inventions and/or from any direct and/or indirect divisionals, continuations, continuations-in-part and/or other patent applications claiming priority rights from the Inventions; (3) all reissues, reexaminations, extensions and/or registrations of the foregoing; (4) all non-United States patents, patent applications and/or counterparts relating to the foregoing, including without limitation certificates of invention, utility models, industrial design protection, design patent protection and other governmental grants and/or issuances, and including the right to file United States and/or foreign applications directly in the name of Assignee, its successors and assigns; (5) all causes of action and/or remedies related to the foregoing (including without limitation, the right to sue for past, present and/or future infringement, misappropriation and/or violation of rights related to any of the foregoing and the right to collect royalties and/or other payments under or on account of any of the foregoing); and, (6) any and all other rights and/or interests arising out of, in connection with and/or in relation to the foregoing.

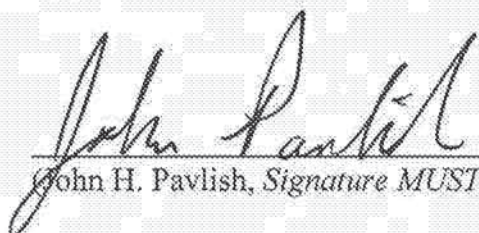
Assignor hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Confirmatory Assignment.

Assignor agrees now, and at any time and from time to time in the future, upon request of Assignee, Assignee's successors, legal representatives and/or assigns, and at Assignee's expense, to take, execute, acknowledge, and deliver all such further acts and deeds, assignments, instruments of transfer or conveyance, registrations for assignments, powers of attorney, declarations and/or assurances as may be required for the assigning, selling, transferring, assuring and confirming to Assignee, and Assignee's successors and assigns, and/or for aiding and assisting in collecting and reducing to possession, the rights assigned, sold and transferred under this Confirmatory Assignment, to participate in proceedings regarding such rights (including without limitation, any litigation and/or patent office proceedings) and/or to or perfect and/or defend title to such rights.

Assignor requests the respective patent office or governmental agency in each jurisdiction to issue any and all patents, certificates of invention, utility models and/or other governmental grants and/or issuances that may be granted upon the rights assigned, sold and transferred under this Confirmatory Assignment in the name of the Assignee, as the assignee to the entire interest therein.

The terms and conditions of this Confirmatory Assignment will inure to the benefit of Assignee, and Assignee's successors, legal representatives and assigns, and will be binding upon Assignor, and Assignor's successors, legal representatives and assigns.

By:


(John H. Pavlish, Signature MUST be attested)

ATTESTATION

ATTESTATION OF SIGNATURE PURSUANT TO 28 U.S.C. 1746

The undersigned witnessed the signature of John H. Pavlish to the above Confirmatory Assignment and makes the following statements:

1. I am over the age of 18 and competent to testify as to the facts in this Attestation block if called upon to do so.
2. John H. Pavlish is personally known to me (or proved to me on the basis of satisfactory evidence) and appeared before me on August 25, 2014 to execute the above Confirmatory Assignment.
3. John H. Pavlish subscribed to the above Confirmatory Assignment.

I declare under penalty of perjury under the laws of the United States of America that the statements made in the three (3) numbered paragraphs immediately above are true and correct.

EXECUTED on August 25, 2014 (date)


Print Name: JAMES R. DUZAN

Exhibit A

1. U.S. Patent No. 7,435,286, issued October 14, 2008, titled "Sorbents for the Oxidation and Removal of Mercury"
2. U.S. Patent No. 7,615,101, issued November 10, 2009, titled "High Energy Dissociation for Mercury Control Systems"
3. U.S. Patent No. 7,628,969, issued December 8, 2009, titled "Multifunctional Abatement of Air Pollutants in Flue Gas"
4. U.S. Patent No. 8,168,147, issued May 1, 2012, titled "Sorbents for the Oxidation and Removal of Mercury"
5. U.S. Patent No. 8,173,566, issued May 8, 2012, titled "Process for Regenerating a Spent Sorbent"
6. U.S. Patent No. 8,312,822, issued November 20, 2012, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"
7. U.S. Patent No. 8,440,585, issued May 14, 2013, titled "Process for Regenerating a Spent Sorbent"
8. U.S. Patent No. 8,512,655, issued August 20, 2013, titled "Sorbents for the Oxidation and Removal of Mercury"
9. U.S. Patent No. 8,652,235, issued February 18, 2014, titled "Sorbents for the Oxidation and Removal of Mercury"
10. U.S. Patent No. 8,807,056, issued August 19, 2014, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"
11. U.S. Patent Application Serial No. 13/453,274, filed on April 23, 2012, titled "Carbon Nanocomposite Sorbent and Methods of Using the Same for Separation of One or More Materials from a Gas Stream"
12. U.S. Patent Application Serial No. 13/544,971, filed on July 9, 2012, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"
13. U.S. Patent Application Serial No. 13/966,768, filed on August 14, 2013, titled "Sorbents for the Oxidation and Removal of Mercury"
14. U.S. Patent Application Serial No. 14/102,896, filed on December 11, 2013, titled "Sorbents for the Oxidation and Removal of Mercury"
15. U.S. Patent Application Serial No. 14/318,270, filed on June 27, 2014, titled "Sorbents for the Oxidation and Removal of Mercury"

16. U.S. Patent Application Serial No. 14/195,360, filed on March 6, 2013, titled "Activated Carbon Sorbent Including Nitrogen and Methods of Using the Same"

17. U.S. Patent Application Serial No. 14/446,992, filed on July 30, 2014, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"

18. U.S. Provisional Patent Application Serial No. 60/605,640, filed on August 30, 2004, titled "Sorbents for the Oxidation and Removal of Mercury"

19. U.S. Provisional Patent Application Serial No. 60/464,868, filed on April 23, 2003, titled "Process for Regenerating a Spent Sorbent"

20. U.S. Provisional Patent Application Serial No. 60/947,543, filed on July 2, 2007, titled "Mercury Control Using Moderate-Temperature Dissociation of Halogen Compounds"

21. U.S. Provisional Patent Application Serial No. 61/773,549, filed on March 6, 2013, titled "Activated Carbon Sorbent Including Nitrogen and Methods of Using the Same"

CONFIRMATORY ASSIGNMENT

THIS CONFIRMATORY ASSIGNMENT is made by Michael J. Holmes residing at 2144 S 38th St, Grand Forks, ND ("Assignor"), to Energy and Environmental Research Center Foundation, a North Dakota nonprofit corporation having a business address of 15 N. 23rd Street, Stop 9018, Grand Forks, North Dakota, 58202-9018 ("Assignee") and is effective as of the date this Confirmatory Assignment is executed by Assignor.

WHEREAS, Assignor has invented the inventions disclosed in the patents and patent applications listed in Exhibit A attached (collectively, and including all such inventions and all patents and patent applications for such inventions that have now been, or may in the future be, filed and/or granted for such inventions, including without limitation those patents and patent applications listed in Exhibit A, "Inventions") and, for good and valuable consideration, has agreed to assign, and has assigned, all of Assignor's right, title and interest in and to the Inventions to Assignee; and

WHEREAS, Assignor desires to confirm and assure the assignment, sale and transfer to Assignee of any and all right, title, and interest Assignor has in the Inventions; and

WHEREAS, this Confirmatory Assignment confirms that all Inventions listed in Exhibit A belong exclusively to Assignee and that Assignor has assigned, sold and transferred to Assignee, and hereby further assigns, sells and transfers to Assignee, without any requirement of further consideration, the entire right, title and interest in and to the Inventions, in the United States and its territorial possessions, and in all foreign countries, including without limitation all rights to claim priority in and to any and all improvements which are disclosed in the Inventions, and that upon the request of the Assignee, Assignor will take such further actions, including without limitation execution and delivery of instruments of conveyance, as may be appropriate to give full and proper effect to such assignment.

NOW THEREFORE, in consideration of the foregoing premises, the sum of Ten Dollars (\$10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby assigns, sells and transfers to Assignee Assignor's entire right, title and interest in and to the Inventions, in the United States and its territorial possessions, and in all foreign countries, including without limitation: (1) all rights to claim priority in and to the Inventions and/or any and all improvements which are disclosed in the Inventions; (2) all rights with respect to the Inventions, including all United States patents and/or other

governmental grants and/or issuances that may be granted with respect to the Inventions and/or from any direct and/or indirect divisionals, continuations, continuations-in-part and/or other patent applications claiming priority rights from the Inventions; (3) all reissues, reexaminations, extensions and/or registrations of the foregoing; (4) all non-United States patents, patent applications and/or counterparts relating to the foregoing, including without limitation certificates of invention, utility models, industrial design protection, design patent protection and other governmental grants and/or issuances, and including the right to file United States and/or foreign applications directly in the name of Assignee, its successors and assigns; (5) all causes of action and/or remedies related to the foregoing (including without limitation, the right to sue for past, present and/or future infringement, misappropriation and/or violation of rights related to any of the foregoing and the right to collect royalties and/or other payments under or on account of any of the foregoing); and, (6) any and all other rights and/or interests arising out of, in connection with and/or in relation to the foregoing.

Assignor hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Confirmatory Assignment.

Assignor agrees now, and at any time and from time to time in the future, upon request of Assignee, Assignee's successors, legal representatives and/or assigns, and at Assignee's expense, to take, execute, acknowledge, and deliver all such further acts and deeds, assignments, instruments of transfer or conveyance, registrations for assignments, powers of attorney, declarations and/or assurances as may be required for the assigning, selling, transferring, assuring and confirming to Assignee, and Assignee's successors and assigns, and/or for aiding and assisting in collecting and reducing to possession, the rights assigned, sold and transferred under this Confirmatory Assignment, to participate in proceedings regarding such rights (including without limitation, any litigation and/or patent office proceedings) and/or to or perfect and/or defend title to such rights.

Assignor requests the respective patent office or governmental agency in each jurisdiction to issue any and all patents, certificates of invention, utility models and/or other governmental grants and/or issuances that may be granted upon the rights assigned, sold and transferred under this Confirmatory Assignment in the name of the Assignee, as the assignee to the entire interest therein.

The terms and conditions of this Confirmatory Assignment will inure to the benefit of Assignee, and Assignee's successors, legal representatives and assigns, and will be binding upon Assignor, and Assignor's successors, legal representatives and assigns.

By:


(Michael J. Holmes, Signature *MUST* be attested)

ATTESTATION

ATTESTATION OF SIGNATURE PURSUANT TO 28 U.S.C. 1746

The undersigned witnessed the signature of Michael J. Holmes to the above Confirmatory Assignment and makes the following statements:

1. I am over the age of 18 and competent to testify as to the facts in this Attestation block if called upon to do so.
2. Michael J. Holmes is personally known to me (or proved to me on the basis of satisfactory evidence) and appeared before me on August 22, 2014 to execute the above Confirmatory Assignment.
3. Michael J. Holmes subscribed to the above Confirmatory Assignment.

I declare under penalty of perjury under the laws of the United States of America that the statements made in the three (3) numbered paragraphs immediately above are true and correct.

EXECUTED on August 22, 2014 (date)


Print Name: JAMES R. DUZAN