DECLARATION OF JUNE ANN MUNFORD

I. BACKGROUND AND QUALIFICATIONS

1. My name is June Ann Munford. I am over the age of 18, have personal knowledge of the facts set forth herein, and am competent to testify to the same.

2. I earned a Master of Library and Information Science (MLIS) from the University of Wisconsin-Milwaukee in 2009. I have over ten years of experience in the library/information science field. Beginning in 2004, I have served in various positions in the public library sector including Assistant Librarian, Youth Services Librarian and Library Director. I have attached my Curriculum Vitae as Appendix CV.

3. During my career in the library profession, I have been responsible for materials acquisition for multiple libraries. In that position, I have cataloged, purchased and processed incoming library works. That includes purchasing materials directly from vendors, recording publishing data from the material in question, creating detailed material records for library catalogs and physically preparing that material for circulation. In addition to my experience in acquisitions, I was also responsible for analyzing large collections of library materials, tailoring library records for optimal catalog

search performance and creating lending agreements between libraries during my time as a Library Director.

II. AP-1007 WAS PUBLICLY ACCESSIBLE IN OCTOBER 2014

4. I have reviewed Exhibit AP-1007, "Structural Optimization of Membrane-Based Biogas Upgrading Process" by Marco Scholz, Michael Alders, Theresa Lohaus and Matthias Wessling.

5. AP-1007 was published in Volume 474 of the *Journal of Membrane Science* in January 2015, but was publicly available before then, as I explain below. Consistent with my investigation described below, AP-1007 states on its first page that it was "Available online 28 September 2014," and also lists four specific "Keywords" on the first page: "Process modeling," "Structural optimization," "Gas permeation," and "Biogas upgrading."

6. Before publication of a complete volume or issue, some scientific journals make available online (either for free or for purchase) individual articles or papers that have already been accepted. These articles are typically labeled as "Articles in Press," or similar, and have been peer reviewed, revised if appropriate, and accepted for publication by the scientific journal. These "Articles in Press" are citable using DOI, a digital object identifier that

provides a permanent, unique string of characters assigned to published works such as books, academic journals and dissertations.

7. In my opinion and experience, the statements on AP-1007 that it was "Received in revised form 8 August 2014," "Accepted 14 August 2014," and "Available online 28 September 2014" are consistent with the article being available as an "Article in Press" before it was published in Volume 474 of the *Journal of Membrane Science* in January 2015. These statements are further corroborated by documentation from the ScienceDirect website as well as the Internet Archive, which I discuss below.

8. I am familiar with the www.sciencedirect.com website ("ScienceDirect") and have been since at least 2014. Since at least 2014, the ScienceDirect website has been a well-known indexed repository of scientific articles that was searchable, among other ways, by title and key words, phrases, or topics and could be searched by members of the public; and members of the public could download scientific articles, either for free or for purchase. In my over ten years of experience in the library/information science field, including in 2014, I have used ScienceDirect's search function multiple times to find articles based on key words, phrases, and topics for both my own research and in support of the research of others in their fields.

9. I am also familiar with the Internet Archive, a digital library formally certified by the State of California as a public library. Among other services that the Internet Archive makes available to the general public is the Wayback Machine, an online archive. The Internet Archive's Wayback Machine service archives webpages as of a certain capture date to track changes in the web over time. The Internet Archive has been in operation as a nonprofit library since 1996 and has hosted the Wayback Machine service since its inception in 2001. During my time as a librarian, I frequently used the Internet Archive's Wayback Machine for research and instruction purposes. This includes teaching instructional classes on using the Wayback Machine to library patrons and using the Wayback Machine to research reference inquiries that require hard-to-find online resources. I consider the Internet Archive's recordskeeping to be as rigorous and detailed as other formal library recordskeeping practices such as MARC records, OCLC records and Dublin Core.

10. I have used the Internet Archive and the Wayback Machine to find documentation showing when "Structural Optimization of Membrane-Based Biogas Upgrading Process" by Marco Scholz, Michael Alders, Theresa Lohaus and Matthias Wessling was publicly available.

11. Attached hereto as Appendix SCHOLZ01 is a screen capture of the Internet Archive Wayback Machine entry for http://www.sciencedirect.com/science/journal/aip/03767388. This page was archived as of October 2, 2014. I secured this screen capture myself from http://web.archive.org/web/20141002020404/http://www.sciencedirect.com/science/journal/aip/03767388. I have also reviewed AP-1035, the declaration of Nathanial Frank-White from the Internet Archive, and Exhibit A to his declaration, starting at page 11, is the same archived web page.

12. Appendix SCHOLZ01 is a ScienceDirect web page that contains a list of "Articles in Press" for the *Journal of Membrane Science* as of October 2, 2014. The list contains an entry for "Structural optimization of membrane-based biogas upgrading processes" by Marco Scholz, Michael Alders, Theresa Lohaus and Matthias Wessling. SCHOLZ01 at 7. This entry shows that "Structural Optimization of Membrane-Based Biogas Upgrading Processes" was an "In Press, Accepted Manuscript" that was first made "Available online 28 September 2014," and includes a link to download and purchase the paper for $35.95. The entry also contains several "Highlights" which appear to be key terms or topics from the article, namely "Process

optimization model for gas permeation," "New biogas upgrading process," and "Identifying optimal membrane materials."

13. Attached hereto as Appendix SCHOLZ02 is a screen capture of the Internet Archive Wayback Machine entry for http://www.sciencedirect.com/science/journal/03767388/474. This page was archived as of October 21, 2014. I secured this screen capture myself from http://web.archive.org/web/20140601000000*/http://www.sciencedirect.com/science/journal/03767388/474. Exhibit A to the Frank-White declaration, starting at page 4, is the same archived web page.

14. Appendix SCHOLZ02 is a ScienceDirect web page that contains a table of contents for the *Journal of Membrane Science*, Volume 474, January 15, 2015, as of October 21, 2014. SCHOLZ02 at 3. This table of contents contains an entry for "Structural optimization of membrane-based biogas upgrading processes" by Marco Scholz, Michael Alders, Theresa Lohaus and Matthias Wessling. This entry includes a link to purchase the paper for $35.95, and identifies several "Highlights" that appear to be key terms or topics from the article, namely "Process optimization model for gas permeation," "New biogas upgrading process," and "Identifying optimal membrane materials." SCHOLZ02 at 4. This web page also states that "This

issue is In Progress but contains articles that are final and fully citable," showing that "Structural Optimization of Membrane-Based Biogas Upgrading Processes" was "final" and citable by the scientific community as of October 21, 2014. In other words, this web page shows that although the article would also be published in the upcoming Volume 474 of the journal, by October 21, 2014 the article had been finalized and made available to the interested public.

15. Together, Appendices SCHOLZ01 and SCHOLZ02 show that AP-1007 was available to members of the interested public as of October 2014 at the latest, and at least on October 2 and 21, 2014, via the ScienceDirect website, before the complete publication of *Journal of Membrane Science*, Volume 474 on January 15, 2015.

III. SCIENCEDIRECT WEBSITE WAS SEARCHABLE IN 2014

16. Using the Internet Archive and the Wayback Machine, I also took additional steps to confirm that in 2014, the ScienceDirect website was searchable by members of the interested public.

17. Attached hereto as Appendix SCHOLZ03 is a screen capture of the Internet Archive Wayback Machine entry for http://www.sciencedirect.com/science/search. This page was archived as of October 01, 2014. I secured this screen capture myself from https://web.archive.org/web/20141001140105/http://www.sciencedirect.com/science/search.

18. Attached hereto as Appendix SCHOLZ04 is a screen capture of the Internet Archive Wayback Machine entry for http://www.sciencedirect.com/science?_ob=MiamiSearchURL&_method=requestForm&_acct=C000228598&_version=1&_urlVersion=1&_userid=10&md5=520299290555d2948d14743bc009f45e&searchtype=a. This page was archived as of October 04, 2012. I secured this screen capture myself from https://web.archive.org/web/20121004233539/http://www.sciencedirect.com:80/science?_ob=MiamiSearchURL&_method=requestForm&_acct=C000228598&_version=1&_urlVersion=1&_userid=10&md5=520299290555d2948d14743bc009f45e&searchtype=a.

19. Attached hereto as Appendix SCHOLZ05 is a screen capture of the Internet Archive Wayback Machine entry for

http://www.sciencedirect.com/science/search. This page was archived as of October 22, 2014. I secured this screen capture myself from https://web.archive.org/web/20141022014834/http://www.sciencedirect.com/science/search.

20. Appendices SCHOLZ03, SCHOLZ04 and SCHOLZ05 are captures of the ScienceDirect Advanced Search web page. They each contain a "Search for" box which allows a user to search "All Fields" including "Abstract, Title, Keywords," "Authors," "Source Title," "Full Text" and other search fields in ScienceDirect's repository of "All Sources" including "Journals" for "All Sciences" over the date range "All Years."

21. In summary, for the reasons explained above, it is my determination that "Structural Optimization of Membrane-Based Biogas Upgrading Process" by Marco Scholz, Michael Alders, Theresa Lohaus and Matthias Wessling was available to the public in a searchable repository (i.e., the ScienceDirect website) as of at least October 2, 2014.

22. My determination is further supported by Petitioner's expert, Dr. Richard Baker, who I understand from his declaration had in his possession an "Author's Accepted Manuscript" copy of AP-1007 from 2014. AP-1003,

¶¶ 246-254 (describing AP-1037). Consistent with my earlier opinions, the cover of AP-1037 indicates that it was accepted on August 14, 2014. AP-1037 at 1. The cover goes on to provide a citation that can be used to cite to the article. I have reviewed AP-1037 and note, as an initial matter, that it was watermarked with an "Accepted manuscript" stamp on each page. AP-1037 at 2. Further, I have compared AP-1037 to AP-1007, and note that the text of the papers appears to be identical, with only minor typographical errors corrected, and formatting changes. This further confirms that the "Article in Press" / "Author's Accepted Manuscript" that was available online as of at least October 2, 2014 (and therefore publicly accessible) is materially identical to AP-1007.

IV. REMOVED CONFERENCE PROCEEDING FURTHER SUPPORTS PUBLIC ACCESSIBILITY OF AP-1007 BY OCTOBER 2014

23. I also identified an additional document that further confirmed that AP-1007 is a true and correct copy of the article that was publicly available on the ScienceDirect website for the first time no later than October 2, 2014.

24. I identified a conference proceeding with the same title as AP-1007 naming Marco Scholz as an author, which was originally made available in 2012, but with different co-authors, SCHOLZ06. The evidence demonstrates that

the 2012 conference proceeding was removed and edited, and this was documented on ScienceDirect. In other words, this evidence shows that when a material change was made to the article, ScienceDirect documented that change.

25. First, SCHOLZ07 (discussed more below) shows a 2012 website describing "Conference Proceedings," and specifically the conference proceedings platform *Procedia Engineering.* The website states that "[a]nyone can access" the conference proceedings platform *Procedia Engineering*, which is "an online-only product focused entirely on publishing high-quality conference proceedings on ScienceDirect (www.sciencedirect.com). There are currently 37 volumes of proceedings in Procedia Engineering, and all are fully searchable and citable by volume and page numbers as with any research journal." SCHOLZ07 at 2.

26. Attached hereto as Appendix SCHOLZ07 is a screen capture of the Internet Archive Wayback Machine entry for http://www.euromembrane2012.com/conference-proceedings.html. This page was archived as of September 15, 2012. I secured this screen capture myself from

https://web.archive.org/web/20120615000000*/http://www.euromembrane2012.com/conference-proceedings.html.

27. Appendix SCHOLZ07 is an Internet Archive record for a web page entitled "Conference Proceedings" from the Euromembrane 2012 Conference web site. This page shows the Euromembrane 2012 Conference Abstracts would be published by *Procedia Engineering* "online on ScienceDirect, and that would provide "conference participants with high visibility and maximum exposure . . . [because] [a]nyone can access *Procedia Engineering*, a subscription is not necessary." SCHOLZ07 at 2. This page also states that "[t]here are currently 37 volumes of proceedings in Procedia Engineering, and all are fully searchable and citable by volume and page numbers as with any research journal," underscoring that by 2012, publications on ScienceDirect were searchable by keywords, titles etc. SCHOLZ07 at 2.

28. Attached hereto as Appendix SCHOLZ06 is a screen capture of a ScienceDirect webpage entitled "REMOVED: Structural Optimization of Membrane Based Biogas Upgrading Processes." This page was captured as of February 20, 2024. I secured this screen capture myself from https://www.sciencedirect.com/science/article/pii/S1877705812034807.

29. Appendix SCHOLZ06 is a ScienceDirect web page showing that "Structural Optimization of Membrane Based Biogas Upgrading Processes" was published in the conference proceedings platform *Procedia Engineering* Volume 44 in 2012, by Marco Scholz and Matthias Wessling albeit with different co-authors than AP-1007. Specifically, authors Michael Alders and Theresa Lohaus are missing from SCHOLZ05, and author "T. Melin" is included. This volume of *Procedia Engineering* was dedicated to the conference proceedings of Euromembrane Conference 2012, as further shown by SCHOLZ07, discussed above. This ScienceDirect page shows that "Structural Optimization of Membrane Based Biogas Upgrading Processes" was published as of 2012 via the paper's association with the conference, but later "removed at the request of the Executive Publisher," specifically "because it was published without the permission of the author(s)." SCHOLZ06 at 1.

30. Attached hereto as Appendix SCHOLZ08 is a file entitled "Publisher's Note" from *Procedia Engineering 44* (2012). This page was captured as of February 2, 2024. I secured this file myself from visiting https://www.sciencedirect.com/science/article/pii/S1877705812034807 and clicking 'Download PDF.'

31. Appendix SCHOLZ08 is a file from the *Procedia Engineering* website describing papers originally published in Volume 44 of the conference proceedings in 2012 but later "removed as they were published without the permission of the authors." SCHOLZ08 at 1. This file assigns a DOI number to "Structural Optimization of Membrane Based Biogas Upgrading Processes," "DOI: 10.1016/j.proeng.2012.08.468." SCHOLZ08 at 10. DOI numbers are a digital object identifier that provides a permanent, unique string of characters assigned to published works such as books, academic journals and dissertations.

32. Appendices SCHOLZ06, SCHOLZ07 and SCHOLZ08 show that the conference proceeding "Structural Optimization of Membrane Based Biogas Upgrading Processes" was published in 2012, via ScienceDirect, by *Procedia Engineering*, in Volume 44, an issue dedicated to the proceedings of the Euromembrane 2012 Conference, but was later removed because of an issue with author approval. As such, it is my determination that "Structural Optimization of Membrane-Based Biogas Upgrading Processes" was made available to the public in a searchable repository (i.e., the ScienceDirect website—a well-indexed and searchable website, that also allowed the public to purchase articles) as early as September 2012, before it was removed.

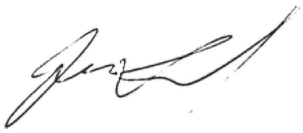
33. In my opinion and experience, Appendices SCHOLZ06, SCHOLZ07 and SCHOLZ08 show that ScienceDirect documents the publication and removal of articles published on its platform. The lack of any such documentation for AP-1007 supports that AP-1007 was publicly accessible no later than October 2, 2014, and was not changed between October 2, 2014 and AP-1007's publication in the time *Journal of Membrane Science*, Volume 474, January 15, 2015 This is consistent with my comparison above of AP-1007 to the "Author's Accepted Manuscript" copy that Dr. Baker had in his possession that demonstrates that, apart from a few typographical errors, the two appear to be identical. As Exhibit AP-1007 is substantively identical to Dr. Baker's "Author's Accepted Manuscript" (Exhibit AP-1037) and matches the description of "Structural Optimization of Membrane-Based Biogas Upgrading Processes" as indexed by ScienceDirect in Appendix SCHOLZ01 and SCHOLZ02, it is my determination that Exhibit AP-1007 is a true and correct copy of "Structural Optimization of Membrane -Based Biogas Upgrading Processes" by Marco Scholz, Michael Alders, Theresa Lohaus and Matthias Wessling.

34. I have been retained on behalf of the Petitioner to provide assistance in the above-illustrated matter in establishing the authenticity and public availability of the documents discussed in this declaration. I am being

compensated for my services in this matter at the rate of $200.00 per hour plus reasonable expenses. My statements are objective, and my compensation does not depend on the outcome of this matter.

I declare under penalty of perjury that the foregoing is true and correct. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: 2/22/2024



June Ann Munford

APPENDIX CV

June A. Munford
Curriculum Vitae

Education

University of Wisconsin-Milwaukee - MS, Library & Information Science, 2009
Milwaukee, WI

- Coursework included cataloging, metadata, data analysis, library systems, management strategies and collection development.
- Specialized in library advocacy, cataloging and public administration.

Grand Valley State University - BA, English Language & Literature, 2008
Allendale, MI

- Coursework included linguistics, documentation and literary analysis.
- Minor in political science with a focus in local-level economics and government.

Professional Experience

Researcher / Expert Witness, October 2017 – present
Freelance ● Pittsburgh, Pennsylvania & Grand Rapids, Michigan

- Material authentication and public accessibility determination. Declarations of authenticity and/or public accessibility provided upon research completion. Experienced with appeals and deposition process.

- Research provided on topics of public library operations, material publication history, digital database services and legacy web resources.

- Past clients include Alston & Bird, Arnold & Porter, Baker Botts, Fish & Richardson, Erise IP, Irell & Manella, O'Melveny & Myers, Perkins-Coie, Pillsbury Winthrop Shaw Pittman and Slayden Grubert Beard.

Library Director, February 2013 - March 2015
Dowagiac District Library ● Dowagiac, Michigan

- Executive administrator of the Dowagiac District Library. Located in

Southwest Michigan, this library has a service area of 13,000, an annual operating budget of over $400,000 and total assets of approximately $1,300,000.

● Developed careful budgeting guidelines to produce a 15% surplus during the 2013-2014 & 2014-2015 fiscal years while being audited.

● Using this budget surplus, oversaw significant library investments including the purchase of property for a future building site, demolition of existing buildings and building renovation projects on the current facility.

● Led the organization and digitization of the library's archival records.

● Served as the public representative for the library, developing business relationships with local school, museum and tribal government entities.

● Developed an objective-based analysis system for measuring library services - including a full collection analysis of the library's 50,000+ circulating items and their records.

November 2010 - January 2013
Librarian & Branch Manager, Anchorage Public Library ● Anchorage, Alaska

● Headed the 2013 Anchorage Reads community reading campaign including event planning, staging public performances and creating marketing materials for mass distribution.

● Co-led the social media department of the library's marketing team, drafting social media guidelines, creating original content and instituting long-term planning via content calendars.

● Developed business relationships with The Boys & Girls Club, Anchorage School District and the US Army to establish summer reading programs for children.

June 2004 - September 2005, September 2006 - October 2013
Library Assistant, Hart Area Public Library
Hart, MI

● Responsible for verifying imported MARC records and original MARC

cataloging for the local-level collection as well as the Michigan Electronic Library.

● Handled OCLC Worldcat interlibrary loan requests & fulfillment via ongoing communication with lending libraries.

Professional Involvement

Alaska Library Association - Anchorage Chapter
● Treasurer, 2012

Library Of Michigan
● Level VII Certification, 2008
● Level II Certification, 2013

Michigan Library Association Annual Conference 2014
● New Directors Conference Panel Member

Southwest Michigan Library Cooperative
● Represented the Dowagiac District Library, 2013-2015

Professional Development

Library Of Michigan Beginning Workshop, May 2008
Petoskey, MI
● Received training in cataloging, local history, collection management, children's literacy and reference service.

Public Library Association Intensive Library Management Training, October 2011
Nashville, TN
● Attended a five-day workshop focused on strategic planning, staff management, statistical analysis, collections and cataloging theory.

Alaska Library Association Annual Conference 2012 - Fairbanks, February 2012
Fairbanks, AK
● Attended seminars on EBSCO advanced search methods, budgeting, cataloging, database usage and marketing.

Depositions

2019 ● Fish & Richardson

Apple v. Qualcomm (IPR2018-001281, 39521-00421IP, IPR2018-01282 and 39521-00421IP2)

2019 ● Erise IP

Implicit, LLC v. Netscout Systems, Inc (Civil Action No. 2:18-cv-53-JRG)

2019 ● Perkins-Coie

Adobe Inc. v. RAH Color Technologies LLC (Cases IPR2019-00627, IPR2019-00628, IPR2019-00629 and IPR2019-00646)

2020 ● O'Melveny & Myers

Maxell, Ltd. v. Apple Inc. (Case No. 5:19-cv-00036-RWS)

2021 ● Pillsbury Winthrop Shaw Pittman LLP

Intel v. SRC (IPR2020-1449)

2022 ● Perkins-Coie

Realtek v. Future Link (IPR2021-01182)

2023 ● Fish & Richardson

Neuroderm Ltd. v. Abbvie, Inc (Case No. PGR2022-00040)

2023 ● Fish & Richardson

Nearmap US Inc. v. Pictometry International Corp. (IPR2022-00735)

2023 ● Fish & Richardson

Samsung Electronics v. MemoryWeb LLC (Case No. 39843-0136PS1)

Limited Case History & Potential Conflicts

Alston & Bird

- Ericsson

  v. Collision Communications (IPR2022-01233)

- Nokia

  v. Neptune Subsea, Xtera (Case No. 1:17-cv-01876)

- Universal Electronics Inc

  v. Roku Inc (IPR2022-00818)

Arnold & Porter

- Ivantis

  v. Glaukos (Case No. 8:18-cv-00620)

- Samsung

  v. Jawbone (Case No. 2:21-cv-00186)

Benesch Friedlander Coplan & Aronoff

- Voyis

  v. Cathx (Case No. 5:21-cv-00077-RWS)

Erise I.P.

- Apple

  v. Ericsson Inc. (IPR2022-00715)

v. Future Link Systems (IPRs 6317804, 6622108, 6807505, and 7917680)

v. INVT (Case No. 20-1881)

v. Navblazer LLC (IPR2020-01253)

v. Qualcomm (IPR2018-001281, 39521-00421IP, IPR2018-01282, 39521-00421IP2)

v. Quest Nettech Corp (Case No. 2:19-cv-00118-JRG)

v. Telefonaktiebolaget LM Ericsson (IPR2022-00275)

- Fanduel

  v. CGT (Case No. 19-1393)

- Garmin

  v. Phillips North America LLC (Case No. 2:19-cv-6301-AB-KS)

- Netscout

  v. Longhorn HD LLC (Case No. 2:20-cv-00349)

  v. Implicit, LLC (Civil Action No. 2:18-cv-53-JRG)

- Sony Interactive Entertainment LLC

  v. Bot M8 LLC (IPR2020-01288)

  v. Infernal Technology LLC (Case No. 2:19-CV-00248-JRG)

- Unified Patents

  v. GE Video Compression (Civil Action No. 2:19-cv-248)

Fish & Richardson

- Apple

v. AliveCor (3:21-cv-03958)

v. LBS Innovations (Case No. 2:19-cv-00119-JRG-RSP)

v. Koss Corporation (IPR2021-00305)

v. Masimo (IPR 50095-0012IP1, 50095-0012IP2, 50095-0013IP1, 50095-0013IP2, 50095-0006IP1, 50095-0135IP1)

v. Neonode (Case No. 21-cv-08872-EMC)

v. Qualcomm (IPR2018-001281, 39521-00421IP, IPR2018-01282, 39521-00421IP2)

- Dell

  v. Neo Wireless (IPR2022-00616)

- Dish Network

  v. Realtime Adaptive Streaming (Case No. 1:17-CV-02097-RBJ)

  v. TQ Delta LLC (Case No. 18-1798)

- Evapco Dry Cooling

  v. SPG Dry Cooling (IPR2021-00688)

- Genetec

  v. Sensormatic Electronics (Case No. 1:20-CV-00760)

- Huawei

  v. Bell Northern Research LLC (IPR2019-01174)

- Kianxis

  v. Blue Yonder (Case No. 3:20-cv-03636)

- LG Electronics

  v. Bell Northern Research LLC (Case No. 3:18-cv-2864-CAB-BLM)

- Metaswitch

  v. Sonus Networks (IPR2018-01719)

- Microsoft

  v. Throughputer Inc (IPR2022-00757)

- MLC Intellectual Property

  v. MicronTech (Case No. 3:14-cv-03657-SI)

- Nearmap Inc

  v. EagleView Technologies (IPR2022-01009)

- Neuroderm Ltd.

  v. Abbvie, Inc (Case No. PGR2022-00040)

- Realtek Semiconductor

  v. Future Link (IPR2021-01182)

- Quectel

  v. Koninklijke Philips (Case No. 1:20-cv-01710)

- Samsung

  v. Aire Technology (IPR2022-00877)

  v. Bell Northern Research (Case No. 2:19-cv-00286-JRG)

  v. Communication Technologies Inc (IPR2022-01221)

v. Jawbone Innovations (IPR2022-00865)

v. MemoryWeb LLC (IPR2022-00885)

v. Telefonaktiebolaget LM Ericsson (IPR2021-00615)

- Texas Instruments

  v. Vantage Micro LLC (IPR2020-01261)

- Xilinx

  v. Sentient Sensors LCC (Case No. 1:22-cv-00173)

Irell & Manella

- Curium

O'Melveny & Myers

- Apple

  v. Maxell (Case No. 5:19-cv-00036-RWS)

- Samsung

  v. Daedalus Prime LLC (1335 Investigation)

Perkins-Coie

- Heru Industries

  v. The UAB Research Foundation (IPR2022-01148)

- Intel Corporation

  v. BitMICRO (Case No. 5:23-cv-00625)

- Realtek Semiconductor

  v. Future Link (IPR2021-01182)

- Twitter Inc

  v. VOIP-Pal.com (Case No. 3:20-cv-02397-JD)

- TCL Industries

  v. Koninklijke Philips NV (IPR2021-00495, IPR2021-00496 and IPR2021-00497)

Pillsbury Winthrop Shaw Pittman

- Intel

  v. FG SRC LLC (Case No. 6:20-cv-00315)

- Gravel Rating Systems

  v. Costco (Case No. 4:21-cv-149)
  v. Lowe's Home Centers (Case No. 4:21-cv-150)
  v. T-Mobile USA (Case No. 4:21-cv-152)
  v. Kohl's Inc. (Case No. 4:21-cv-258)
  v. Under Armor (Case No. 4:21-cv-356)

APPENDIX SCHOLZ01

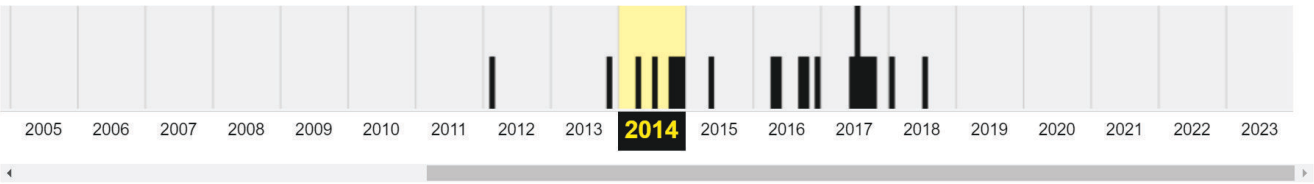
screenshot-web.archive.org-2023.12.15-15_58_16
https://web.archive.org/web/20140901000000*/http://www.sciencedirect.com/science/journal/aip/03767388
15.12.2023

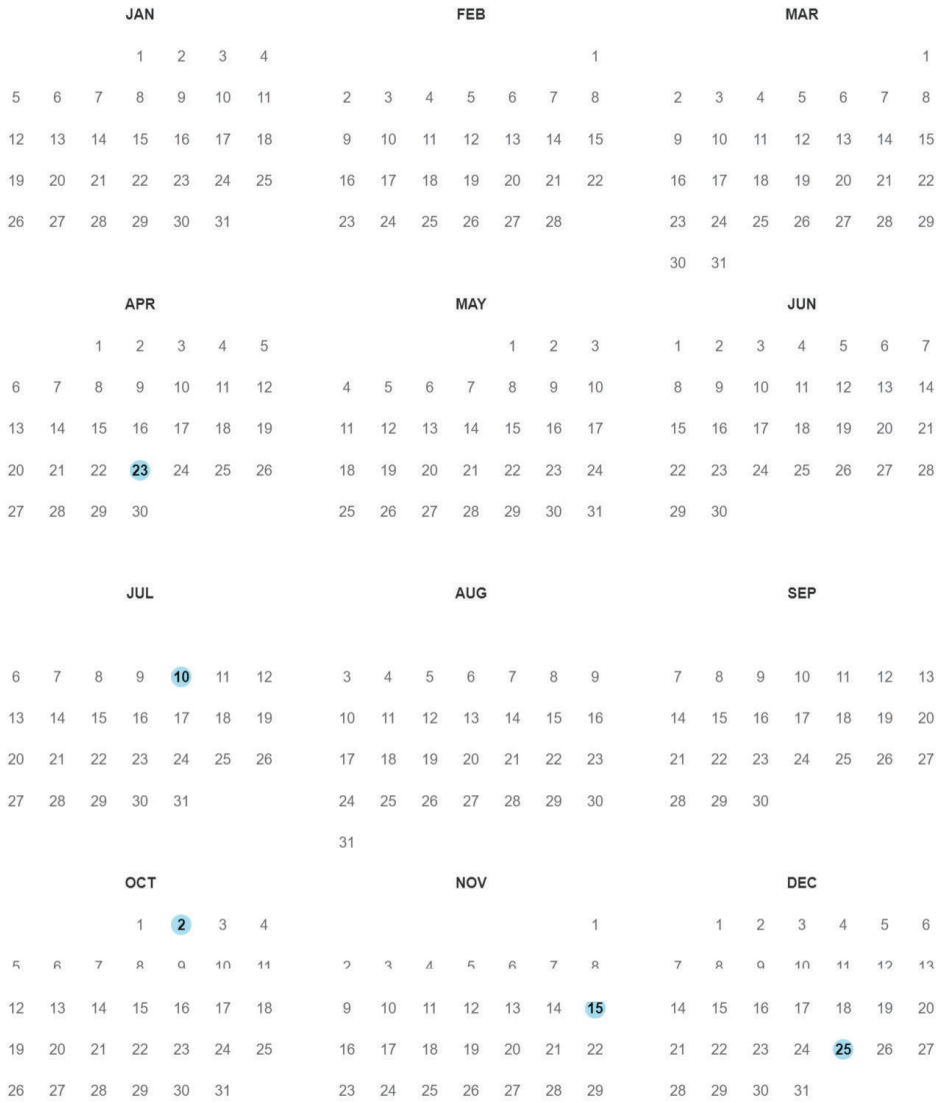
INTERNET ARCHIVE
SIGN UP | LOG IN UPLOAD Search
ABOUT BLOG PROJECTS HELP DONATE CONTACT JOBS VOLUNTEER PEOPLE

DONATE
INTERNET ARCHIVE WayBackMachine
Explore more than 869 billion web pages saved over time
http://www.sciencedirect.com/science/journal/aip/03767388

Calendar · Collections · Changes · Summary · Site Map · URLs

Saved **21 times** between February 1, 2012 and July 27, 2018.





30

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Gas-transport properties of new mixed matrix membranes based on addition poly(3-trimethylsilyltricyclononene-7) and substituted calixarenes Original Research Article

In Press, Accepted Manuscript, Available online 30 September 2014

P.P. Chapala, M.V. Bermeshev, L.E. Starannikova, V.P. Shantarovich, N.N. Gavrilova, V.G. Avakyan, M.P. Filatova, Yampolskii Yu.P., E.Sh. Finkelshtein

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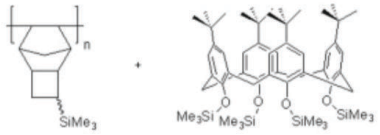

Composition (wt. p/wt.p)	100/0	100/10	100/40
$\alpha(CO_2/N_2)$	13.6	14.1	20.6
$\alpha(C_4H_{10}/CH_4)$	12.9	14.3	24.6

Membrane evaporation of amine solution for energy saving in post-combustion carbon capture: Performance evaluation Original Research Article

In Press, Accepted Manuscript, Available online 28 September 2014

Shuaifei Zhao, Chencheng Cao, Leigh Wardhaugh, Paul H.M. Feron

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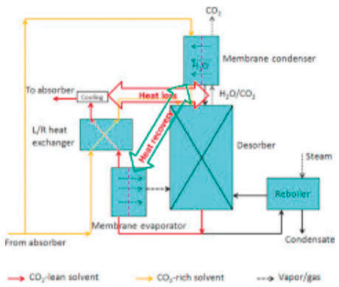

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Mathematical Modeling of CO_2 Separation from Gaseous-Mixture using a Hollow-Fiber Membrane Module: Physical Mechanism and Influence of Partial-Wetting Original Research Article

***In Press, Accepted Manuscript**, Available online 28 September 2014*

Nikhil Goyal, Shishir Suman, S.K. Gupta

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Comprehensive mechanistic modeling of CO_2 separation from gaseous-mixture.
- Mechanism for partial-wetting formulated in consort with microphysical phenomena.
- Systematic study of physical effects of operating variables on module performance.
- Existence of a non-dispersive hydrodynamic regime for liquid-phase demonstrated.
- Broad Analysis of temporal decline in CO_2 Flux pertaining to morphological changes.

Hydrogen permeability Of $SrCe_{0.7}Zr_{0.25}Ln_{0.05}O_{3-\delta}$ membranes (Ln=Tm and Yb) Original Research Article

***In Press, Accepted Manuscript**, Available online 28 September 2014*

Wen Xing, Paul Inge Dahl, Lasse Valland Roaas, Marie-Laure Fontaine, Yngve Larring, Partow P. Henriksen, Rune Bredesen

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Zr stabilized acceptor doped $SrCeO_3$membrane materials were characterized.
- Hydrogen flux was measured under open and short circuitconditions.
- De-mixing of the materials was observed after hydrogen flux measurements.

Enhanced CO_2 separation properties by incorporating poly(ethylene glycol)-containing polymeric submicrospheres into polyimide membrane Original Research Article

***In Press, Accepted Manuscript**, Available online 28 September 2014*

Shaofei Wang, Zhizhang Tian, Jiangyan Feng, Hong Wu, Yifan Li, Ye Liu, Xueqin Li, Qingping Xin, Zhongyi Jiang

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- PEG-containing submicrosphere was used as novel filler to prepare hybrid membranes.
- CO_2 solubility was increased with PEGSS incorporation.
- N_2 and CH_4 permeabilities were both decreased with PEGSS incorporation.
- CO_2/N_2 and CO_2/CH_4 selectivities were both increased in hybrid membranes.

Binary iron cobalt oxide silica membrane for Gas separation Original Research Article

***In Press, Accepted Manuscript**, Available online 28 September 2014*

Adi Darmawan, Julius Motuzas, Simon Smart, Anne Julbe, João C Diniz da Costa

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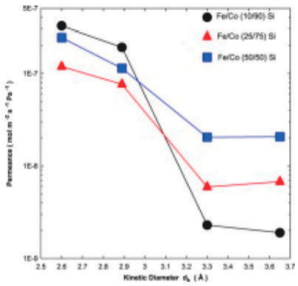

ZIF-8/PDMS mixed matrix membranes for propane/nitrogen mixture separation: Experimental result and permeation model validation Original Research Article

permeation model validation Original Research Article

In Press, Accepted Manuscript, *Available online 28 September 2014*

Manquan Fang, Chilung Wu, Zhengjin Yang, Tao Wang, Yang Xia, Jiding Li

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- ZIF-8/PDMS MMMs were fabricated and applied in hydrocarbon recovery.
- Intimate interface interaction with enhanced selectivity for MMMs.
- Modified Maxwell model taking non-ideal interface and agglomeration into account.
- Extended application scope of Maxwell model with credible prediction result.

Synthesis and properties of highly branched star-shaped sulfonated block poly(arylene ether)s as proton exchange membranes Original Research Article

In Press, Accepted Manuscript, *Available online 28 September 2014*

Huixiong Xie, Dan Tao, Xiongzhi Xiang, Yangxing Ou, Xiaojun Bai, Lei Wang

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Two types of highly branched star-shaped sulfonated block polymers were synthesized.
- The star-shaped block polymers exhibit better properties than the random polymer.
- The membranes exhibit considerable proton conductivity and oxidative stability.
- The microstructure of the membranes was investigated by SEM and AFM.

Preparation, characterization and performance study of cellulose acetate membranes modified by aliphatic hyperbranched polyester Original Research Article

In Press, Accepted Manuscript, *Available online 28 September 2014*

Hossein Mahdavi, Taieb Shahalizade

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Highlights

- Blend membranes of CA and HBPEs with different compositions were prepared through a typical phase inversion method.
- Since additive structure and content are key parameters that determining the CA overall properties we emphasized on effect of these parameters on surface and bulk morphologies, filtration properties, wettability, thermal behaviour and hydrophilicity.
- Increasing of HBPE will cause controlled increase of pure water flux and MWCO of the CA membrane.
- SEM images and porosity determination results demonstrated that the CA-HBPEs possess dense bulk structures compared with membranes modified with conventional additives.
- Hyperbranched polyesters mostly improved surface properties of CA membranes and almost maintained bulk thermal and mechanical stability by forming inter-chain H-bond interactions.

Highly gas permeable aromatic polyamides containing adamantane substituted triphenylamine Original Research Article

In Press, Accepted Manuscript, *Available online 28 September 2014*

Debaditya Bera, Parthasarathi Bandyopadhyay, Sipra Ghosh, Susanta Banerjee, Venkat Padmanabhan

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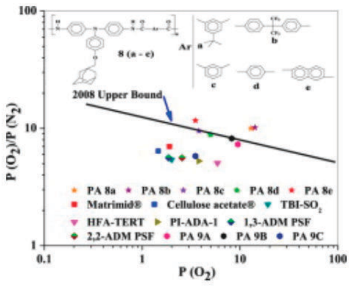

Structural optimization of membrane-based biogas upgrading processes Original Research Article

In Press, Accepted Manuscript, Available online 28 September 2014

Marco Scholz, Michael Alders, Theresa Lohaus, Matthias Wessling

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Process optimization model for gas permeation.
- New biogas upgrading process.
- Identifying optimal membrane materials.

A one-pot method for the preparation of mixed matrix polyvinylidene fluoride Membranes with *in situ* synthesized and PEGylated polyethyleneimine particles Original Research Article

In Press, Accepted Manuscript, Available online 28 September 2014

Madhusudhana Rao Kotte, Taewoon Hwang, Jong-In Han, Mamadou S Diallo

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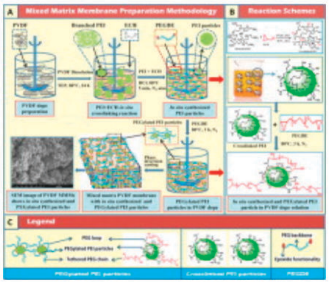

Application of Fe(II)/K_2MnO_4 as a pre-treatment for controlling UF membrane fouling in drinking water treatment Original Research Article

In Press, Accepted Manuscript, Available online 28 September 2014

Wenzheng Yu, Nigel. J.D. Graham

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Highlight

- Combination of Fe(II) and K_2MnO_4 is a potentially more cost-effective pre-treatment.
- Fe/Mn pre-treatment reduced bacterial activity and decreased EPS concentration.
- EEM confirmed protein-like materials in CUF-Fe cake layer was from bacterial growth.
- Less organic matter was adsorbed in the pores of CUF-Fe/Mn membrane than CUF-Fe.

Performance Evaluation of trimethylamine – carbon dioxide thermolytic draw solution for engineered osmosis Original Research Article

In Press, Accepted Manuscript, Available online 22 September 2014

Chanhee Boo, Yehia Khalil, Menachem Elimelech

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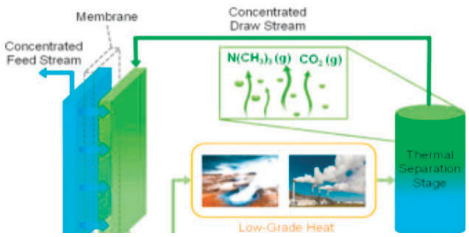

Transport Properties of electrospun fibrous Membranes with controlled anisotropy Original Research Article

***In Press, Accepted Manuscript**, Available online 22 September 2014*

Matthew D.R. Kok, Jeff T. Gostick

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Highlights

- Membranes with varying degrees of fiber alignment were electrospun.
- In-plane permeability was measured with and against fiber direction.
- The results are normalized for varying fiber size, porosity, alignment and thickness.
- A method is proposed to extract meaningful Carman-Kozeny constants from the data.

Evaluation of electrochemical Properties and reverse electrodialysis performance for porous cation exchange Membranes with sulfate-functionalized iron oxide Original Research Article

***In Press, Accepted Manuscript**, Available online 21 September 2014*

Jin Gi Hong, Yongsheng Chen

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Synthesis and application of porous nanocomposite cation exchange membranes for RED power generation.
- Structural variation and nanoparticle loadings significantly enhanced the electrochemical properties.
- Area resistance was highly dependent on thickness and porosity of the membranes.
- Reduction of membrane thickness improved 45% of gross power density.

Characterization of hollow fiber membranes by impedance spectroscopy Original Research Article

***In Press, Accepted Manuscript**, Available online 19 September 2014*

S. Bannwarth, M. Darestani, H. Coster, M. Wessling

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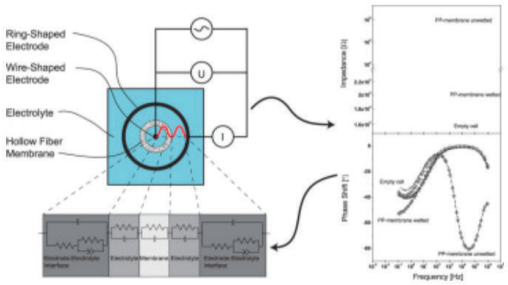

Influence of Propane on CO_2/CH_4 and N_2/CH_4 Separations in CHA Zeolite Membranes Original Research Article

***In Press, Accepted Manuscript**, Available online 19 September 2014*

Ting Wu, Merritt C. Diaz, Yihong Zheng, Rongfei Zhou, Hans H. Funke, John L. Falconer, Richard D. Noble

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Highlights

- SSZ-13 membranes can be prepared with very few defects.
- Propane decreases CO_2, N_2, and CH_4 permeances through SAPO-34 and SSZ-13 membranes.
- Propane affects SSZ-13 membranes less than SAPO-34 membranes.
- SSZ-13 membranes separate N_2/CH_4 mixtures with selectivities of 9–13.

Recent Advances in membrane distillation processes: membrane development, configuration design and application Exploring Review Article

In Press, Accepted Manuscript, Available online 19 September 2014

Peng Wang, Tai-Shung Chung

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- This review aims to summarize the recent advances in membrane distillation (MD) and provide perspectives for its future R&D.
- The development of MD membranes was reviewed from different aspects as material, micro-structure and macro-geometry.
- The traditional and new configuration designs with improved energy efficiency were summarized.
- Various applications and MD based hybrid systems were reviewed comprehensively.

Anionic catalyst binders based on trimethylamine-quaternized poly(2,6-dimethyl-1,4-phenylene oxide) for alkaline electrolyzers Original Research Article

In Press, Accepted Manuscript, Available online 17 September 2014

Jan Schauer, Jaromír Hnát, Libžovauše Brožová, Jan Žitka, Karel Bouzek

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Highlights

- Trimethylamine-quaternized poly(2,6-dimethyl-1,4-phenylene oxide) (qPPO) was prepared.
- qPPO was tested as a catalyst binder in an alkaline membrane electrolyzer.
- The application of qPPO lead to higher current densities than that of PTFE binder.

Removal of hazardous volatile organic compounds from water by vacuum pervaporation with Hydrophobic ceramic membranes Original Research Article

In Press, Accepted Manuscript, Available online 16 September 2014

Joanna Kujawa, Sophie Cerneaux, Wojciech Kujawski

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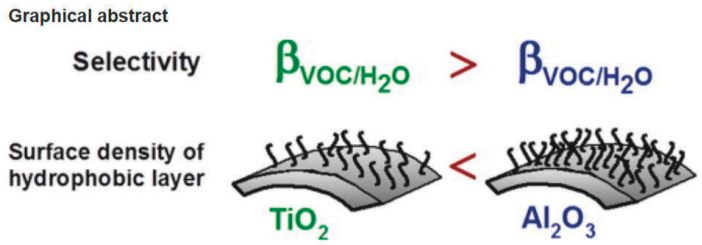

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Reviews

Recent advances in membrane distillation processes: Membrane development, configuration design and application exploring Review Article

Pages 39-56

Peng Wang, Tai-Shung Chung

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- This review aims to summarize the recent advances in membrane distillation

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Reviews

Recent advances in membrane distillation processes: Membrane development, configuration design and application exploring Review Article
Pages 39-56
Peng Wang, Tai-Shung Chung
Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- This review aims to summarize the recent advances in membrane distillation (MD) and provide perspectives for its future R&D.
- The development of MD membranes was reviewed from different aspects as material, micro-structure and macro-geometry.
- The traditional and new configuration designs with improved energy efficiency were summarized.
- Various applications and MD based hybrid systems were reviewed comprehensively.

Original Research Papers

Structural optimization of membrane-based biogas upgrading processes Original Research Article
Pages 1-10
Marco Scholz, Michael Alders, Theresa Lohaus, Matthias Wessling
Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Process optimization model for gas permeation.
- New biogas upgrading process.
- Identifying optimal membrane materials.

Removal of hazardous volatile organic compounds from water by vacuum pervaporation with hydrophobic ceramic membranes Original Research Article
Pages 11-19
Joanna Kujawa, Sophie Cerneaux, Wojciech Kujawski
Abstract | Close graphical abstract | Research highlights | Purchase PDF - $35.95

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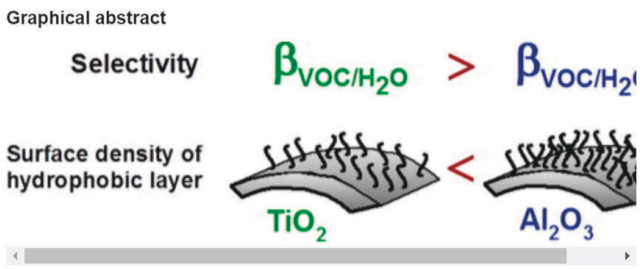

Highly gas permeable aromatic polyamides containing adamantane substituted triphenylamine Original Research Article

Pages 20-31

Debaditya Bera, Parthasarathi Bandyopadhyay, Sipra Ghosh, Susanta Banerjee, Venkat Padmanabhan

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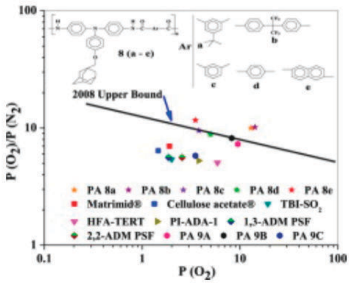

Binary iron cobalt oxide silica membrane for gas separation Original Research Article

Pages 32-38

Adi Darmawan, Julius Motuzas, Simon Smart, Anne Julbe, João C. Diniz da Costa

Abstract | Close graphical abstract | Research highlights | Purchase PDF - $35.95

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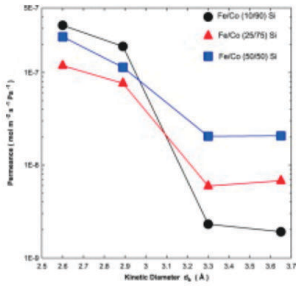

First principles study of N and H atoms adsorption and NH formation on Pd(111) and Pd3Ag(111) surfaces Original Research Article

Pages 57-63

Bhume Chantaramolee, Allan Abraham B. Padama, Hideaki Kasai, Yogi Wibisono Budhi

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- N, H, NH adsorption and NH formation on Pd(111) and $Pd_3Ag(111)$ surfaces were studied.
- Adsorption energies of N and NH are weakened when they adsorb near Ag alloy

- Adsorption energies of N and NH are weakened when they adsorb near Ag alloy atom.
- H atom adsorption energies are comparable on both Pd(111) and $Pd_3Ag(111)$ surfaces.
- N adsorption suppresses H adsorption energies nearby and $Pd_3Ag(111)$ shows less suppression.
- Activation barrier for NH formation across Ag of $Pd_3Ag(111)$ is raised by 0.2–0.3 eV.

☐ Mathematical modeling of CO_2 separation from gaseous-mixture using a Hollow-Fiber Membrane Module: Physical mechanism and influence of partial-wetting Original Research Article

Pages 64-82

Nikhil Goyal, Shishir Suman, S.K. Gupta

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Highlights

- Comprehensive mechanistic modeling of CO_2 separation from gaseous-mixture.
- Mechanism for partial-wetting formulated in consort with microphysical phenomena.
- Systematic study of physical effects of operating variables on module performance.
- Existence of a non-dispersive hydrodynamic regime for liquid-phase demonstrated.
- Broad analysis of temporal decline in CO_2 flux pertaining to morphological changes.

☐ Gas-transport properties of new mixed matrix membranes based on addition poly(3-trimethylsilyltricyclononene-7) and substituted calixarenes Original Research Article

Pages 83-91

P.P. Chapala, M.V. Bermeshev, L.E. Starannikova, V.P. Shantarovich, N.N. Gavrilova, V.G. Avakyan, M.P. Filatova, Yu.P. Yampolskii, E.Sh. Finkelshtein

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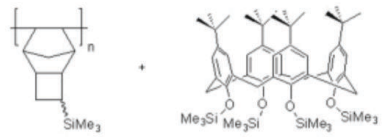

Composition (wt. p/wt.p)	100/0	100/10	100/40
$\alpha(CO_2/N_2)$	13.6	14.1	20.6
$\alpha(C_4H_{10}/CH_4)$	12.9	14.3	24.6

☐ Effect of single-walled carbon nanotubes on the transport properties of sulfonated poly(styrene–isobutylene–styrene) membranes Original Research Article

Pages 92-102

Sonia L. Avilés-Barreto, David Suleiman

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Highlights

- Transport properties are influenced by the type (bulk or bound) and amount of water.
- Selectivity results suggest an optimum SWCNT loading due to competing effects.

- SWCNT functionalized with terminal sulfonic groups improve transport properties.
- Selectivity improvements are more significant for substances of different polarities.

ZIF-8/PDMS mixed matrix membranes for propane/nitrogen mixture separation: Experimental result and permeation model validation Original Research Article

Pages 103-113

Manquan Fang, Chilung Wu, Zhengjin Yang, Tao Wang, Yang Xia, Jiding Li

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Highlights

- ZIF-8/PDMS MMMs were fabricated and applied in hydrocarbon recovery.
- Intimate interface interaction with enhanced selectivity for MMMs.
- Modified Maxwell model taking non-ideal interface and agglomeration into account.
- Extended application scope of Maxwell model with credible prediction result.

Preparation and characterization of carbon and carbon/zeolite membranes from ODPA–ODA type polyetherimide Original Research Article

Pages 114-121

Bing Zhang, Yonghong Wu, Yunhua Lu, Tonghua Wang, Xigao Jian, Jieshan Qiu

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- ODPA–ODA type polyetherimide was developed to prepare carbon membranes.
- The effect of preoxidation temperatures on membranes was discussed.
- The gas separation data of the carbon membranes surpass Robeson's upper bound.
- The incorporation of zeolite ZSM-5 into carbon membranes improves the H_2/N_2 selectivity.

Gas sorption and transport in thermally rearranged polybenzoxazole membranes derived from polyhydroxylamides Original Research Article

Pages 122-131

Seungju Kim, Jong Geun Seong, Yu Seong Do, Young Moo Lee

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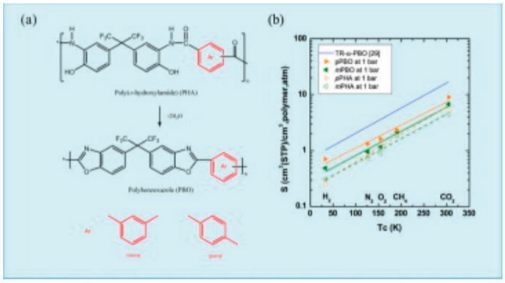

A study on structure and properties of poly(*p*-phenylene terephthamide) hybrid porous membranes Original Research Article

Pages 132-139

Chun Wang, Changfa Xiao, Qinglin Huang, Jian Pan

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Reduction of methanol crossover and improved electrical efficiency in direct methanol fuel cell by the formation of a thin layer on Nafion 117 membrane: Effect of dip-coating of a blend of sulphonated PVdF-co-HFP and PBI Original Research Article

Pages 140-147

Sudipta Mondal, Shweta Soam, Patit Paban Kundu

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Coating of the blends of SPVDF-co-HFP and PBI on Nafion 117.
- Lowering of methanol crossover of Nafion 117 was found.
- Higher stability of coated membranes at higher temperature was observed.
- Maximum performance (39 mW/cm^2) at 90 °C resulted with the membrane coated with 70:30 PBI and SPVDF-co-HFP.

The functional separator coated with core–shell structured silica–poly(methyl methacrylate) sub-microspheres for lithium-ion batteries Original Research Article

Pages 148-155

Pingting Yang, Peng Zhang, Chuan Shi, Lixiao Chen, Jianhui Dai, Jinbao Zhao

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- Core–shell structured SiO_2–poly(methyl methacrylate) sub-microspheres are prepared.
- A functional ceramic-coated separator coated by the sub-microspheres is developed.
- The separator exhibits good thermostability and electrolyte retention ability.
- The separator multi-functionality provides cells with greater safety performance.

Constructing CO_2 transport passageways in Matrimid® membranes using nanohydrogels for efficient carbon capture Original Research Article

Pages 156-166

Xueqin Li, Meidi Wang, Shaofei Wang, Yifan Li, Zhongyi Jiang, Ruili Guo, Hong Wu, XingZhong Cao, Jing Yang, Baoyi Wang

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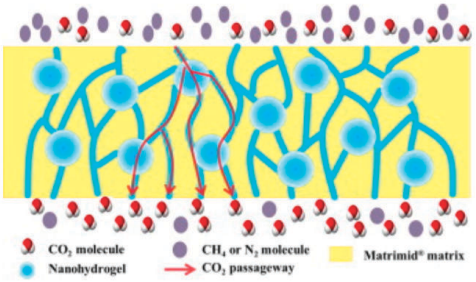

Novel composite cation exchange films based on sulfonated PVDF for electromembrane separations Original Research Article

Pages 167-174

H. Farrokhzad, T. Kikhavani, F. Monnaie, S.N. Ashrafizadeh, G. Koeckelberghs, T. Van Gerven, B. Van der Bruggen

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- A novel composite membrane based on sulfonated PVDF was synthesized.

- Sufonation was proved by FTIR and its degree was estimated by TGA and HNMR.
- Sulfonation decreased the thermal stability and melting point of PVDF.
- IEC and conductivity were varied against the permselectivity in membranes.
- The membrane with 70% S-PVDF gave a better performance than a commercial membrane.

Alkali resistant cross-linked poly(arylene ether sulfone)s membranes containing aromatic side-chain quaternary ammonium groups Original Research Article

Pages 187-195

Guanghui Nie, Xiuhua Li, Jinxiong Tao, Wenjun Wu, Shijun Liao

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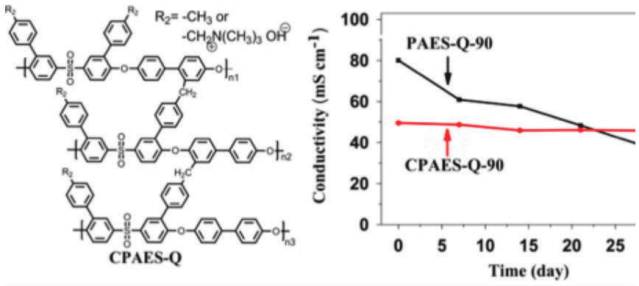
Graphical abstract



Investigation on the membrane formation process of polymer–diluent system via thermally induced phase separation accompanied with mass transfer across the interface: Dissipative particle dynamics simulation and its experimental verification Original Research Article

Pages 196-206

Yuan-hui Tang, Yan-dong He, Xiao-lin Wang

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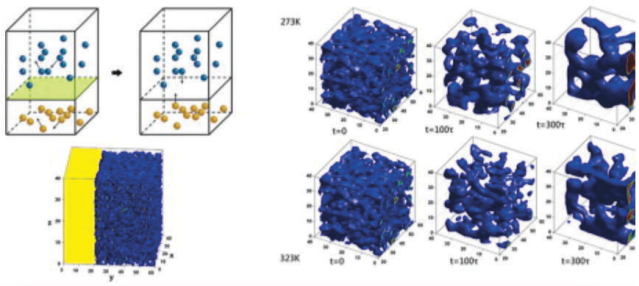

Assessing the interaction effects of coagulation pretreatment and membrane material on UF fouling control using HPSEC combined with peak-fitting Original Research Article

Pages 207-214

Chun-Hsi Lai, Yung-Chen Chou, Hsuan-Hsien Yeh

Abstract | Close research highlights | Purchase PDF - $35.95

Highlights

- PVC based UF membrane retained only biopolymer fraction organic.
- Besides biopolymer, CA based UF membrane also retained low MW organics.
- Alum coagulation had higher removal of biopolymer than that of low MW acids.

- The efficiency of alum pre-coagulation on CA membrane fouling control was inferior to that on PVC membrane.

Numerical simulation of linear sweep and large amplitude ac voltammetries of ion-exchange membrane systems Original Research Article
Pages 215-223
A.A. Moya, E. Belashova, P. Sistat
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Highlights

- The linear sweep voltammetry of ion-exchange membranes is investigated.
- A threshold sweep rate to get currents higher than that of the limiting current is calculated.
- The waveforms for the current in ac voltammetry in membranes are analyzed.
- A threshold frequency to get current amplitudes higher than that of the limiting current is obtained.

Persistently hydrophilic microporous membranes based on *in situ* cross-linking Original Research Article
Pages 224-232
Mimi Tao, Fu Liu, Lixin Xue
Abstract | Close research highlights | Purchase PDF - $35.95
Supplementary content

Highlights

- PVP segments were firmly immobilized in the PVDF membrane due to the well-designed *in situ* cross-linking reaction.
- The obtained membrane exhibited outstanding hydrophilicity and excellent antifouling property.
- The newly-developed strategy can be extended to a universal approach to persistently hydrophilic microporous membrane.

pH-responsive controlled release characteristics of solutes with different molecular weights diffusing across membranes of Ca-alginate/protamine/silica hybrid capsules Original Research Article
Pages 233-243
Fan He, Li Mei, Xiao-Jie Ju, Rui Xie, Wei Wang, Zhuang Liu, Fang Wu, Liang-Yin Chu
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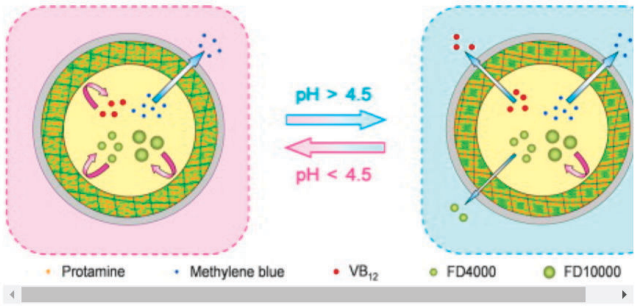

Self-humidifying Pt–graphene/SiO_2 composite membrane for polymer electrolyte membrane fuel cell Original Research Article
Pages 254-262
D.C. Lee, H.N. Yang, S.H. Park, K.W. Park, W.J. Kim
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Highlights

Highlights

- Pt–graphene is prepared by in-situ reduction of Pt precursor on graphene oxide.
- Amount of Pt–G and SiO_2 in composite membrane affects the cell performance.
- Too much inorganic filler seems to rather block proton conduction.
- SiO_2 content due to water retention ability affects open circuit voltage.

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Articles **1 - 24**

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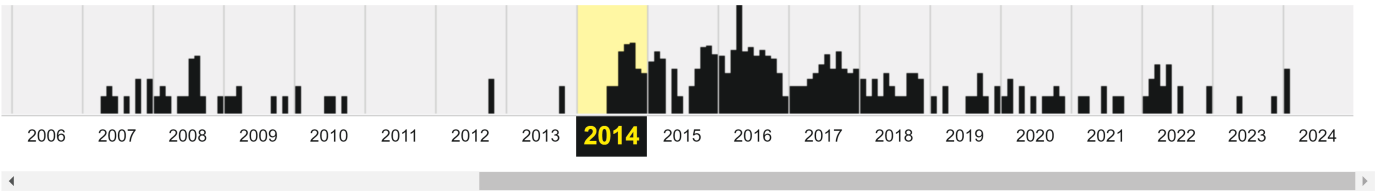

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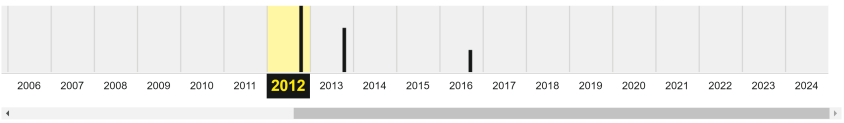

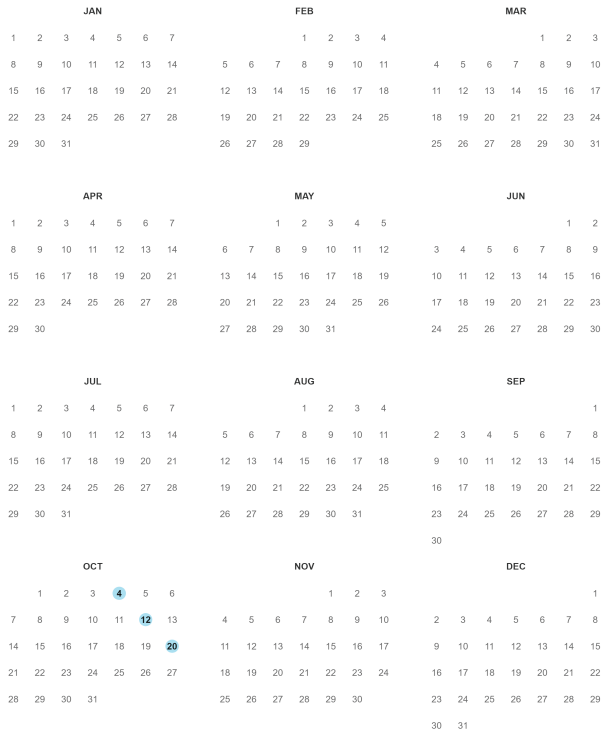

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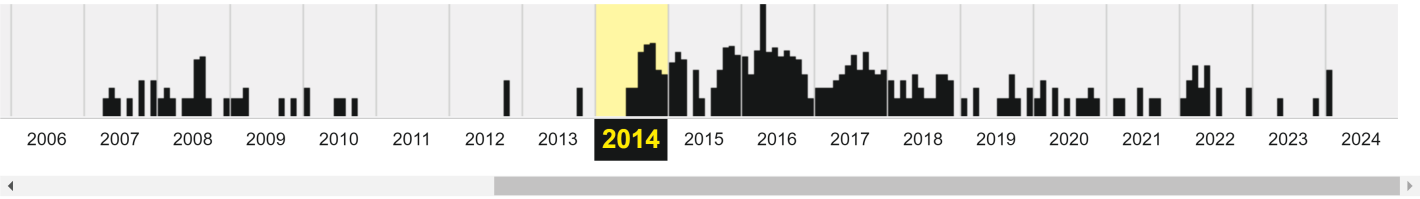

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Volume 44, 2012, Pages 508-509

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M. Scholz, T. Melin, M. Wessling

RWTH Aachen, Germany

Available online 7 November 2012.

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