

JOURNAL OF Applied Polymer SCIENCE

EDITOR-IN-CHIEF

Stefan Spiegel

DEPUTY EDITOR

Hilary J. Crichton

ASSOCIATE EDITORS

Emily Hu

Jenny Mahoney

Mara Staffilani

Xin Su

ASSISTANT**MANAGING EDITORS**

Jenna Pope

Jessica Bradley

PRODUCTION EDITOR

Melissa Ekis

FOUNDING EDITOR

Herman F. Mark

CONSULTING EDITOR

Eric Baer

EXECUTIVE EDITORS**Subramanian Iyer**

Eastman Chemical Company

Advanced Polymer Engineer

100 Lincoln Street

Kingsport, TN 37660, USA

Brian Knapp

PROMERUS LLC

9921 Brecksville Road

Brecksville, OH 44141, USA

Sergei Nazarenko

The University of Southern

Mississippi, School of Polymers and

High Performance Materials

118 College Drive MB #10076

Hattiesburg, MS 39406-0001, USA

Mark A. Schubert

Sherwin-Williams Company

Breen Technology Center

601 Canal Road

Cleveland, OH 44113 USA

EDITORIAL BOARD**Rigoberto Advincula**

University of Houston

Houston, TX, USA

Ann-Christine Albertsson

KTH Royal Institute of Technology

Stockholm, Sweden

David Benko

The Goodyear Tire & Rubber Co.

Akron, OH, USA

Anil Bhowmick

Indian Institute of Technology

Kharagpur, India

Bryan Boudouris

Purdue University

West Lafayette, IN, USA

Neal Chung

National University of Singapore

Singapore

Robert E. Cohen

Massachusetts Institute of

Technology

Cambridge, MA, USA

Isabel C. Escobar

University of Toledo

Toledo, OH, USA

Antonio Facchetti

Northwestern University

Evanston, IL, USA

Lionel Flandin

Université de Savoie

Le Bourget-du-lac, France

Andrzej Galeski

Polish Academy of Sciences

Sienkiewicza, Poland

Julie M. Goddard

University of Massachusetts

Amherst, MA, USA

Sophie M. Guillaume

Université de Rennes

Rennes, France

Atsushi Hotta

Keio University

Yokohama, Japan

Yanbin Huang

Tsinghua University

Beijing, China

Avraam I. Isayev

The University of Akron

Akron, OH, USA

J. Karger-Kocsis

University of Technology

and Economics

Budapest, Hungary

Sangamesh Kumbar

University of Connecticut Health

Center

Farmington, CT, USA

J. M. Lagaron

Novel Materials and Nanotechnology,

IATA-CSIC

Valencia, Spain

Daeyeon Lee

University of Pennsylvania

Philadelphia, PA, USA

Alan J. Lesser

University of Massachusetts

Amherst, MA, USA

Yongfang Li

Chinese Academy of Sciences

Beijing, China

Michael Malkoch

KTH Royal Institute of Technology

Stockholm, Sweden

Jimmy W. Mays

University of Tennessee

Knoxville, TN, USA

Michael A. R. Meier

Karlsruhe Institute of Technology

Karlsruhe, Germany

Manjuri Misra

University of Guelph

Guelph, Ontario, Canada

Koon-Gee Neoh

National University of Singapore

Singapore

Roisin M. Owens

Ecole des Mines de St. Etienne

Gardanne, France

Roberto Pantani

University of Salerno

Salerno, Italy

Cheolmin Park

Yonsei University

Seoul, South Korea

Ho Bum Park

Hanyang University

Seoul, South Korea

Moon Jeong Park

POSTECH

Pohang, South Korea

Donald R. Paul

University of Texas

Austin, TX, USA

Nicholas A. Peppas

University of Texas at Austin

Austin, TX, USA

Luana Persano

National Research Council

Italy

Robert K. Prud'homme

Princeton University

Princeton, NJ, USA

David A. Putnam

Cornell University

Ithaca, NY, USA

Bluma G. Soares

Universidade Federal do

Rio de Janeiro

Rio de Janeiro, Brazil

S. C. Tjong

City University of Hong Kong

Kowloon, Hong Kong

Jadranka Travas-Sejdic

University of Auckland

Auckland, New Zealand

Christopher Tucker

The Dow Chemical Company

Midland, MI, USA

Bart Van der Bruggen

KU Leuven

Leuven, Belgium

Yu-Zhong Wang

Sichuan University

Chengdu, China

Christoph Weder

University of Freiburg

Freiburg, Germany

Robert A. Weiss

University of Connecticut

Storrs, CT, USA

Andrew K. Whittaker

University of Queensland

Brisbane, Australia

Paula Wood-Adams

Concordia University

Montreal, QC, Canada

Kenneth J. Wynne

Virginia Commonwealth University

Richmond, VA, USA

Lina Zhang

Wuhan University

Wuhan, China

Liqun Zhang

Beijing University of Chemical

Technology, Beijing, China

The JOURNAL OF APPLIED POLYMER SCIENCE (Print ISSN: 0021-8995; Online: 1097-4628) is published semi-monthly, by Wiley Subscription Services, Inc., a Wiley Company, 111 River St., Hoboken, NJ 07030-5774.

Periodical Postage Paid at Hoboken, NJ and additional offices.

Postmaster: Send all address changes to The JOURNAL OF APPLIED POLYMER SCIENCE, John Wiley & Sons Inc., C/O The Sheridan Press, PO Box 465, Hanover, PA 17331.

Copyright and Copying: Copyright © 2016 Wiley Periodicals, Inc., a Wiley Company. All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from the copyright holder. Authorization to copy items for internal and personal use is granted by the copyright holder for libraries and other users registered with their local Reproduction Rights Organisation (RRO), e.g. Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale. Special requests should be addressed to: permissions@wiley.com

Information for Subscribers: The *Journal of Applied Polymer Science* is published in 48 issues per year. Institutional subscription prices for 2016 are: Print & Online: US\$38,297 (US), US\$38,938 (Rest of the World), €25,124 (Europe), £19,866 (UK). Prices are exclusive of tax. Asia-Pacific GST, Canadian GST/HST and European VAT will be applied at the appropriate rates. For more information on current tax rates, please go to www.wileyonlinelibrary.com/tax-vat. The price includes online access to the current and all online back files to January 1st 2012, where available. For other pricing options, including access information and terms and conditions, please visit www.wileyonlinelibrary.com/access

For submission instructions, subscription and all other information visit: wileyonlinelibrary.com/journal/APP

Delivery Terms and Legal Title: Where the subscription price includes print issues and delivery is to the recipient's address, delivery terms are Delivered at Place (DAP); the recipient is responsible for paying any import duty or taxes. Title to all issues transfers FOB our shipping point, freight prepaid. We will endeavour to fulfil claims for missing or damaged copies within six months of publication, within our reasonable discretion and subject to availability.

Journal Customer Services: For ordering information, claims and any enquiry concerning your journal subscription please go to www.wileycustomerhelp.com/ask or contact your nearest office.

Americas: Email: cs-journals@wiley.com; Tel: +1 781 388 8598 or +1 800 835 6770 (toll free in the USA & Canada).

Europe, Middle East and Africa: Email: cs-journals@wiley.com; Tel: +44 (0) 1865 778315.

Asia Pacific: Email: cs-journals@wiley.com; Tel: +65 6511 8000.

Japan: For Japanese speaking support, Email: cs-japan@wiley.com; Tel: +65 6511 8010 or Tel (toll-free): 005 316 50 480.

Visit our Online Customer Help available in 7 languages at www.wileycustomerhelp.com/ask

Production Editor: Melissa Ekis (email: APP@wiley.com)

View this journal online at wileyonlinelibrary.com/journal/APP

The JOURNAL OF APPLIED POLYMER SCIENCE accepts articles for Open Access publication. Please visit <http://olabout.wiley.com/WileyCDA/Section/id-406241.html> for further information about OnlineOpen.

Back issues: Single issues from current and recent volumes are available at the current single issue price from cs-journals@wiley.com. Earlier issues may be obtained from Periodicals Service Company, 351 Fairview Avenue — Ste 300, Hudson, NY 12534, USA. Tel: +1 518 822-9300, Fax: +1 518 822-9305, E-mail: psc@periodicals.com

Advertising/Sales: Inquiries concerning advertising should be forwarded to the Advertising Sales Manager, c/o John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030; (201) 748-8832. Advertising Sales, European Contact: Jackie Sibley, c/o John Wiley & Sons, Ltd., The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England. Tel: 44 1243 770 351; Fax: 44 1243 770 432; e-mail: adsales@wiley.co.uk.

Disclaimer: The Publisher and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher and Editors of the products advertised.

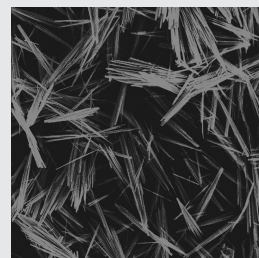
Other Correspondence: Address all other correspondence to: JOURNAL OF APPLIED POLYMER SCIENCE, Publisher, c/o John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030.

Wiley's Corporate Citizenship initiative seeks to address the environmental, social, economic, and ethical challenges faced in our business and which are important to our diverse stakeholder groups. Since launching the initiative, we have focused on sharing our content with those in need, enhancing community philanthropy, reducing our carbon impact, creating global guidelines and best practices for paper use, establishing a vendor code of ethics, and engaging our colleagues and other stakeholders in our efforts. Follow our progress at www.wiley.com/go/citizenship.

Abstracting and Indexing Services: The Journal is indexed by *Chemical Abstracts*, *Chemical Titles*, *Chemistry Citation Index*, *Compendex*, *Current Contents/Engineering, Computing, and Technology*, *Current Contents/Physical, Chemical and Earth Sciences*, *INSPEC*, *ISI Alerting Services (includes Research Alert)*, *Materials Science Citation Index*, *Polymer Blends, Alloys & Interpenetrating Polymer Networks Abstracts*, *Reaction Citation Index*, *Science Citation Index*, *SciSearch (also known as Science Citation Index-Expanded)*, *Urethane Abstracts*, *World Surface Coatings Abstracts*, and *World Textiles*.

Wiley's Corporate Citizenship initiative seeks to address the environmental, social, economic, and ethical challenges faced in our business and which are important to our diverse stakeholder groups. Since launching the initiative, we have focused on sharing our content with those in need, enhancing community philanthropy, reducing our carbon impact, creating global guidelines and best practices for paper use, establishing a vendor code of ethics, and engaging our colleagues and other stakeholders in our efforts. Follow our progress at www.wiley.com/go/citizenship
Printed in Singapore by Markono Print Media Pte Ltd.

Caihong Lei, Qi Cai, Ruijie Xu, Xiande Chen, and Jiayi Xie investigate the influence of Magnesium Sulfate Whiskers (MgSO₄) on the structure and properties of polypropylene (PP) cast films and stretched microporous membranes. During the fabrication of microporous membranes, only stretching along the machine direction was carried out to initiate pore formation, resulting in lower strength along the transverse direction. This work gave a method to improve the mechanical properties of stretched microporous membranes along the transverse direction. The obtained microporous membranes with better electrolyte absorption and higher mechanical strength along the transverse direction could be used in the Li-ion battery as a separator. (DOI: 10.1002/app.43884)



Volume 133, Number 35 was mailed the week of June 27, 2016.

RESEARCH ARTICLES

43730 Preparation of Fe₃O₄/poly(L-glutamic acid) microspheres and their adsorption of Cu(II) ions

H. WANG, Y. LIU, Z. DENG AND S. HAN

Published online 9 June 2016

43813 Dispersion polymerization of methyl methacrylate with three types of comblike fluorinated stabilizers in supercritical carbon dioxide

M. HARUKI, Y. KODAMA, K. TACHIMORI, S.-I. KIHARA AND S. TAKISHIMA

Published online 31 May 2016

43833 Flexible polyurethane foams modified with biobased polyols: Synthesis and physical-chemical characterization

G. D. SOTO, N. E. MARCOVICH AND M. A. MOSIEWICKI

Published online 30 May 2016

43837 Modeling of time dependent mechanical behavior of polymers: Comparison between amorphous and semicrystalline polyethylene terephthalate

F. GEHRING, J.-L. BOUVARD AND N. BILLON

Published online 1 June 2016

43840 Improvement of mechanical characteristics of glycidyl azide polymer binder system by addition of flexible polyether

J. DENG, G. LI, M. XIA, Y. LAN AND Y. LUO

Published online 31 May 2016

43843 Preparation of poly(methyl methacrylate-co-butyl methacrylate) nanoparticles and their reinforcing effect on natural rubber

J. LIU, X. TIAN, J. SUN AND Y. YUAN

Published online 31 May 2016

43844 Study on the preparation, characterization, and release behavior of carbosulfan/polyurethane microcapsules

Y. XU, L. WANG, Y. TONG, S. XIANG, X. GUO, J. LI, H. GAO AND X. WU

Published online 30 May 2016

- 43850 Antibacterial polycaprolactone electrospun fiber mats prepared by soluble eggshell membrane protein-assisted adsorption of silver nanoparticles**
H.-H. LIU, Q. LI, X. LIANG, X. XIONG, J. YU AND Z.-X. GUO
Published online 31 May 2016
- 43852 Controlled DNA interpolyelectrolyte complex formation or dissociation via stimuli-responsive poly(vinylamine-co-N-vinylisobutylamide)**
W. TACHABOONYAKIAT, H. AJIRO AND M. AKASHI
Published online 9 June 2016
- 43855 SiAlON-epoxy nanocomposite coatings: Corrosion and wear behavior**
M. H. MORADI, M. ALIOFKHAZRAEI, M. TOORANI, A. GOLGOON AND A. S. ROUHAGHDAM
Published online 18 May 2016
- 43856 Effects of compatibilizer on the morphological, mechanical, and rheological properties of poly(methyl methacrylate)/poly(N-methyl methacrylimide) blends**
J. M. KIM, M. G. JANG, D. H. PARK AND W. N. KIM
Published online 30 May 2016
- 43874 Climate-friendly polyurethane blowing agent based on a carbon dioxide adduct from palmitic acid grafted polyethyleneimine**
Y. LONG, F. SUN, C. LIU, D. HUANG AND X. XIE
Published online 30 May 2016
- 43877 Recycling of wood fiber-reinforced HDPE by multiple reprocessing**
D. ÅKESSON, T. FUCHS, M. STÖSS, A. ROOT, E. STENVALL AND M. SKRIFVARS
Published online 19 May 2016
- 43878 Biocomposites based on chemically modified cellulose fibers with renewable fatty-acid-based thermoplastic systems: Effect of different fiber treatments**
M. REULIER, R. PERRIN AND L. AVÉROUS
Published online 19 May 2016
- 43879 Role of epoxidation on segmental motion of polyisoprene as studied by broadband dielectric spectroscopy**
M.-C. LUO, R. AN, X.-X. GAO, J. ZENG AND G.-S. HUANG
Published online 24 May 2016
- 43880 Sorption behavior of reactive dyed labelled fibroin on fibrous substrates**
H.-T. NGO AND T. BECHTOLD
Published online 24 May 2016
- 43881 Effect of cenosphere surface treatment and blending method on the tensile properties of thermoplastic matrix syntactic foams**
B. R. B. KUMAR, S. E. ZELTMANN, M. DODDAMANI, N. GUPTA, UZMA, S. GURUPADU AND R. R. N. SAILAJA
Published online 24 May 2016
- 43882 Poly1-hexene: New impact modifier in HIPS technology**
A. HANIFPOUR, N. BAHRI-LALEH, M. NEKOOMANESH-HAGHIGHI AND S. A. MIRMOHAMMADI
Published online 24 May 2016
- 43883 Conducting polymerized high-internal-phase emulsion/single-walled carbon nanotube nanocomposite foams: Effect of the aqueous-phase surfactant type on the morphology and conductivity**
H. KARIMIAN AND M. R. MOGHBELI
Published online 30 May 2016
- 43884 Influence of magnesium sulfate whiskers on the structure and properties of melt-stretching polypropylene microporous membranes**
C. LEI, Q. CAI, R. XU, X. CHEN AND J. XIE
Published online 2 June 2016

- 43885 Ultrathin electrospun PANI nanofibers for neuronal tissue engineering**
R. CASTAGNA, M. TUNESI, B. SAGLIO, C. D. PINA, A. SIRONI, D. ALBANI, C. BERTARELLI AND E. FALLETTA
Published online 26 May 2016
- 43887 Effect of tungsten disulfide nanotubes on the thermomechanical properties of polypropylene-graft-maleic anhydride nanocomposites**
A. BAKLAVARIDIS, I. TSIAOUSSIS, C. PANAYIOTOU AND I. ZUBURTIKUDIS
Published online 24 May 2016
- 43895 Functional polymer from high molecular weight linear polyols and polyurethane-based crosslinking units: Synthesis, characterization, and boron retention properties**
M. PALENCIA, D. F. RESTREPO AND E. COMBATT
Published online 19 May 2016
- 43896 Enhanced nonisothermal and isothermal cold crystallization kinetics of biodegradable poly(L-lactide) by trisilanolisobutyl-polyhedral oligomeric silsesquioxanes in their nanocomposites**
L. TANG AND Z. QIU
Published online 24 May 2016
- 43897 Enhancing the thermo-oxidative stability of PLA through the use of hybrid organic-inorganic coatings**
M. TOSELLI AND A. SACCANI
Published online 30 May 2016