

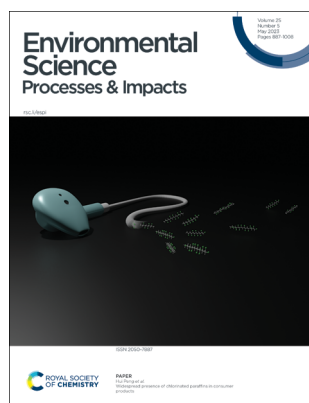
Environmental Science Processes & Impacts

rsc.li/espi

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2050-7887 CODEN ESPICZ 25(5) 887–1008 (2023)



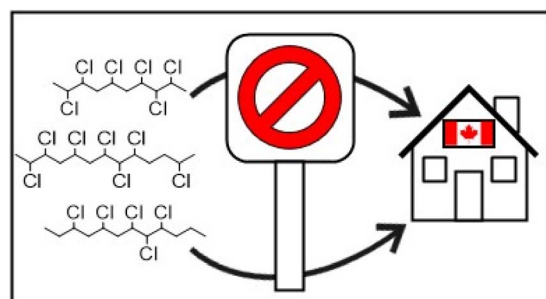
Cover
See Hui Peng *et al.*, pp. 893–900. Image created via Blender Foundation - www.blender.org - and reproduced by permission of Steven Kutarna from *Environ. Sci.: Processes Impacts*, 2023, 25, 893.

PAPERS

893

Widespread presence of chlorinated paraffins in consumer products

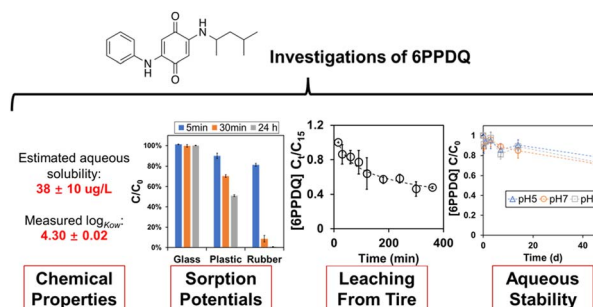
Steven Kutarna, Xuan Du, Miriam L. Diamond, Arlene Blum and Hui Peng*



901

Chemical characteristics, leaching, and stability of the ubiquitous tire rubber-derived toxicant 6PPD-quinone

Ximin Hu, Haoqi (Nina) Zhao, Zhenyu Tian, Katherine T. Peter, Michael C. Dodd and Edward P. Kolodziej*



Editorial Staff

Executive Editor

Neil Scriven

Deputy Editor

Grace Thoburn

Development Editor

Nour Tanbouza

Editorial Production Manager

Claire Darby

Publishing Editors

Emma Carlisle, Hannah Hamilton, Irene Sanchez Molina Santos, Michael Spenceclayh, Callum Woof, Lauren Yarrow-Wright

Editorial Assistant

Kate Bando

Publishing Assistant

Linda Warncke

Publisher

Sam Keltie

For queries about submitted papers please contact Claire Darby, Editorial Production Manager, in the first instance. E-mail: espi@rsc.org

For pre-submission queries please contact Neil Scriven, Executive Editor. E-mail: espi-rsc@rsc.org

Environmental Science: Processes & Impacts (electronic: ISSN 2050-7895) is published 12 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK
Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual electronic subscription price: £1839 US\$3301. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017;
E-mail advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

Environmental Science Processes & Impacts

rsc.li/espi

Environmental Science: Processes & Impacts is a multidisciplinary journal for the environmental chemical sciences, publishing high quality papers in areas including the chemistry of the air, water, soil and sediment.

Editorial Board

Editor-in-Chief

Kristopher McNeill, ETH Zürich, Switzerland

Associate Editors

Marianne Glasius, Aarhus University, Denmark

Heileen Hsu-Kim, Duke University, USA

Qian Liu, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, China

Matthew MacLeod, Stockholm University, Sweden

Jasquelin Peña, University of California, Davis, USA

Paul Tratnyek, Oregon Health & Science University, USA

Members

Katye Altieri, University of Cape Town, South Africa

Ludmilla Aristilde, Northwestern University, USA

Amila de Silva, Environment and Climate Change Canada, Canada

Beate Escher, Helmholtz Centre for Environmental Research, Germany

Mingliang Fang, Nanyang Technological University, Singapore

Delphine Farmer,

Colorado State University, USA

Weihua Song, Fudan University, China

Lenny Winkel,

Swiss Federal Institute of Aquatic Science and Technology, Eawag, Switzerland

Cora Young, York University, Canada

Advisory Board

Urs Baltensperger, Paul Scherrer Institute, Switzerland

Alexandria Boehm, Stanford University, USA

Richard Brown, National Physical Laboratory, UK

Junji Cao, Institute of Earth Environment, CAS, China

Kathrin Fenner, Swiss Federal Institute of Aquatic Science and Technology, Eawag, Switzerland

Tamara Galloway, University of Exeter, UK

Philip Gschwend, Massachusetts Institute of Technology, USA

Liang-Hong Guo, China Jiliang University, China

Colleen Hansel, Woods Hole Oceanographic Institution, USA

Hans Christian Bruun Hansen, University of Copenhagen, Denmark

Stuart Harrad, University of Birmingham, UK

Jianying Hu, Peking University, China

Young-Shin Jun, Washington University in St. Louis, USA

Andreas Kappler, University of Tübingen, Germany

Karen Kidd, McMaster University, Canada

Edward Kolodziej, University of Washington, USA

Ruben Kretzschmar, ETH Zürich, Switzerland

Linsey Marr, Virginia Polytechnic Institute and State University, USA

Derek Muir, Environment & Climate Change Canada, Canada

Kara Nelson, University of California, Berkeley, USA

USA

Jasquelin Peña, University of California, Davis, USA

Noelle Selin, Massachusetts Institute of Technology, USA

Susan Solomon, Massachusetts Institute of Technology, USA

Elsie Sunderland, Harvard University, USA

Sachchida Nand Tripathi, Indian Institute of Technology Kanpur, India

David Waite, University of New South Wales, Australia

Frank Wania, University of Toronto at Scarborough, Canada

Guang-Guo Ying, South China Normal University, China

Information for Authors

Full details on how to submit material for publication in *Environmental Science: Processes & Impacts* are given in the *Instructions for Authors* (available from <http://www.rsc.org/authors>). Submissions should be made via the journal's homepage: rsc.li/espi

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023.

Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

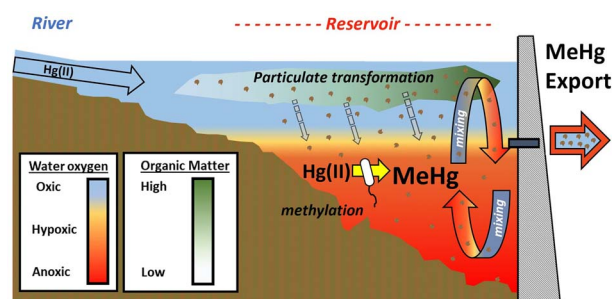
Registered charity number: 207890



912

Biogeochemical and hydrologic synergy control mercury fate in an arid land river-reservoir system

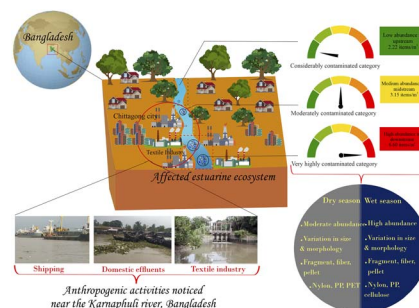
Brett A. Poulin,* Michael T. Tate, Jacob Ogorek, Sara E. Breitmeyer, Austin K. Baldwin, Alysa M. Yoder, Reed Harris, Jesse Naymik, Nick Gastelecutto, Charles Hoovestol, Christopher Larsen, Ralph Myers, George R. Aiken and David P. Krabbenhoft



929

Spatiotemporal trends and characteristics of microplastic contamination in a large river-dominated estuary

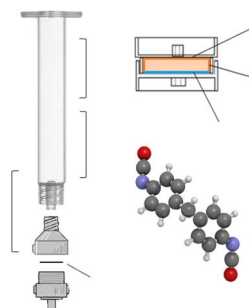
Md. Refat Jahan Rakib,* Sultan Al Nahian, Reyhane Madadi, Sayeed Mahmood Belal Haider, Gabriel Enrique De-la-Torre, Tony R. Walker, M. P. Jonathan, Win Cowger, Mayeen Uddin Khandaker and Abubakr M. Idris



941

Comprehensive methylene diphenyl diisocyanate (MDI) evaluation method comparison using a laboratory generation system

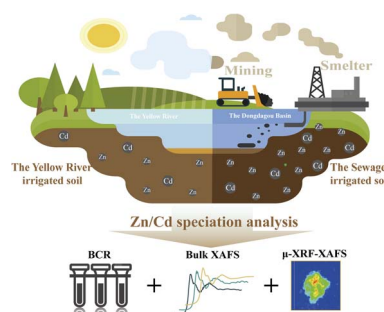
Simon Aubin,* Loic Wingert, Sébastien Gagné, Livain Breau and Jacques Lesage



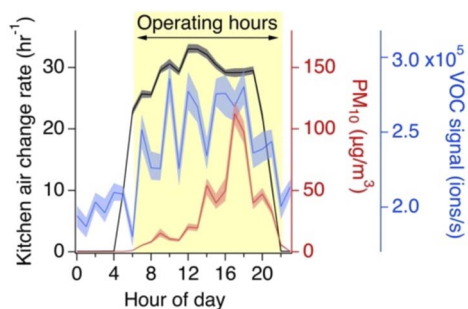
954

Speciation of Zn and Cd in sierozem soil, northwest China: bulk EXAFS and micro synchrotron X-ray fluorescence

Xiaolan Zhao, Yoshio Takahashi, Wangsuo Wu, Changjie Liu and Qiaohui Fan*



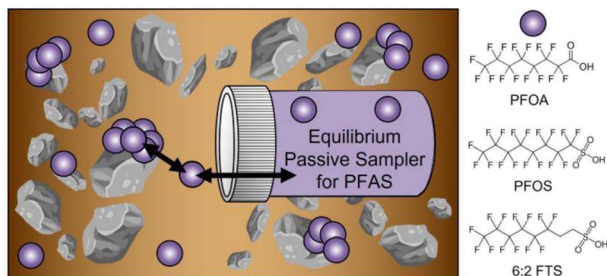
964



Indoor and outdoor air quality impacts of cooking and cleaning emissions from a commercial kitchen

Jenna C. Ditto, Leigh R. Crilley, Melodie Lao, Trevor C. VandenBoer, Jonathan P. D. Abbatt* and Arthur W. H. Chan*

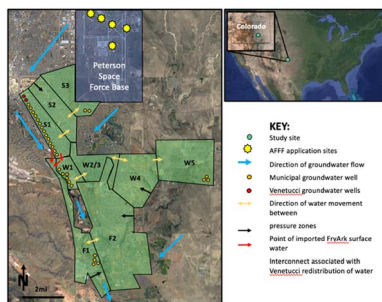
980



A field-validated equilibrium passive sampler for the monitoring of per- and polyfluoroalkyl substances (PFAS) in sediment pore water and surface water

Blessing Medon, Brent G. Pautler,* Alexander Sweett, Jeff Roberts, Florent F. Risacher, Lisa A. D'Agostino, Jason Conder, Jeremy R. Gauthier, Scott A. Mabury, Andrew Patterson, Patricia McIsaac, Robert Mitzel, Seyfollah Gilak Hakimabadi and Anh Le-Tuan Pham*

996



Estimating historical exposure to perfluoroalkyl acids in Security, Fountain, and Widefield Colorado: use of water-infrastructure blending and toxicokinetic models

Jessica Meeks, Sarah Mass, John L. Adgate, Kelsey Barton, Kamini Singha, John E. McCray, Anne P. Starling and Christopher P. Higgins*

