March 15, 2007

Environmental Science & Technology

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Dry Deposition *of* Atmospheric MERCURY *in* Nevada

Persistent Halogenated Hydrocarbons in Consumer Fish of China

Contaminated Salmon and the Public's Trust

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News and Features

NEWS

Cover: The image of scrub in the Nevada desert was provided by Fotosearch.

Online news: Read news first at http://pubs.acs.org/estnews.

FEATURE

Research

POLICY ANALYSIS

CHARACTERIZATION OF NATURAL AND AFFECTED ENVIRONMENTS

■ **Supporting information is available free at http://pubs.acs.org/est.**
▶ **This issue contains a news story about this research.**

■ 1928

Sorption of Tetracycline and Chlortetracycline on K- and Ca-Saturated Soil Clays, Humic Substances, and Clay–Humic Complexes

Jutta R. V. Pils and David A. Laird

The sorption of tetracycline and chlortetracycline on clays, humic substances, and clay–humic complexes derived from two agricultural soils is studied; dilute $CaCl_2$ and KCl are used as background solutions.

■ 1934

Sorption and Inhibited Dehydrohalogenation of 2,2-Dichloropropane in Micropores of Dealuminated Y Zeolites

Hefa Cheng and Martin Reinhard

The dehydrohalogenation of 2,2-dichloropropane sorbed in micropores of dealuminated Y zeolites is inhibited less if the micropores are hydrophilic and more if they are hydrophobic.

■ 1942

Zn Incorporation in Hydroxy-Al- and Keggin Al_{13}-Intercalated Montmorillonite: A Powder and Polarized EXAFS Study

Michel L. Schlegel and Alain Manceau

Polarized EXAFS spectroscopy demonstrates that Zn sorbed on hydroxyl-Al- and keggin Al_{13}-intercalated montmorillonite is eventually incorporated in gibbsitic sheets parallel to montmorillonite platelets.

ENVIRONMENTAL MEASUREMENTS METHODS

■ 1949

Noble Gas Excess Air Applied to Distinguish Groundwater Recharge Conditions

Richard G. S. Ingram, Kevin M. Hiscock, and Paul F. Dennis

Measurement of excess neon concentrations in a sandstone aquifer demonstrates that excess air may be used as an indicator of net annual groundwater recharge.

■ 1956

Measuring Air–Water Interfacial Areas with X-ray Microtomography and Interfacial Partitioning Tracer Tests

Mark L. Brusseau, Sheng Peng, Gregory Schnaar, and Asami Murao

Air–water interfacial areas are measured with microtomography and partitioning tracer tests; the specific interface domains characterized by the methods are discussed.

■ 1962

Size Distribution of Trace Organic Species Emitted from Heavy-Duty Diesel Vehicles

Sarah G. Riddle, Michael A. Robert, Chris A. Jakober, Michael P. Hannigan, and Michael J. Kleeman

Size distributions of trace organic species in diesel-engine exhaust particles are measured as a first step in quantifying diesel source contributions to airborne ultrafine ($D_p < 0.1$ μm) particle mass.

■ 1970

▶ **Estimation of Dry Deposition of Atmospheric Mercury in Nevada by Direct and Indirect Methods**

Seth N. Lyman, Mae Sexauer Gustin, Eric M. Prestbo, and Frank J. Marsik

Dry deposition of atmospheric mercury species is estimated at three sites in Nevada.

REMEDIATION AND CONTROL TECHNOLOGIES

1977

Kinetics and Mechanisms of Radiolytic Degradation of Nitrobenzene in Aqueous Solutions

Shu-Juan Zhang, Hong Jiang, Min-Jie Li, Han-Qing Yu, Hao Yin, and Qian-Rong Li

Mechanisms behind the radiolytic degradation of nitrobenzene under both oxidative and reductive conditions are proposed in light of the degradation products observed.

■ 1983

Continuous Catalytic Hydrogenation of Polyaromatic Hydrocarbon Compounds in Hydrogen–Supercritical Carbon Dioxide

Tao Yuan, Anick R. Fournier, Raymond Proudlock, and William D. Marshall

A reactor eliminates the mutagenic activities of selected PAH compounds (chrysene and benzo[*a*]pyrene) by hydrogenation over palladium in a hydrogen-rich atmosphere of supercritical CO_2.

■ 1989

Precipitates on Granular Iron in Solutions Containing Calcium Carbonate with Trichloroethene and Hexavalent Chromium

Sung-Wook Jeen, John L. Jambor, David W. Blowes, and Robert W. Gillham

Mineralogical examination is conducted on the Fe^0-bearing reactive materials derived from long-term column experiments operated under different geochemical conditions.

1995

Recycle Technology for Recovering Resources and Products from Waste Printed Circuit Boards

Jia Li, Hongzhou Lu, Jie Guo, Zhenming Xu, and Yaohe Zhou

PCPs are processed by a recycling technology of mechanical two-step crushing, corona electrostatic separation, and recovery without negative impact to the environment.

2001

Minimizing Dioxin Emissions from Integrated MSW Thermal Treatment

Wai Hung Cheung, Vinci K. C. Lee, and Gordon McKay

A novel two-stage MSW combustion process has been designed and constructed as a pilot plant facility to integrate MSW combustion with cement production.

■ 2008

Effect of Flux (Transmembrane Pressure) and Membrane Properties on Fouling and Rejection of Reverse Osmosis and Nanofiltration Membranes Treating Perfluorooctane Sulfonate Containing Wastewater

Chuyang Y. Tang, Q. Shiang Fu, Craig S. Criddle, and James O. Leckie

Membrane technology is used to remove an emerging contaminant, perfluorinated octane sulfonate; special emphasis is given to fouling and rejection mechanisms.

■ 2015

Impact of Ethanol on the Natural Attenuation of MTBE in a Normally Sulfate-Reducing Aquifer

Doug Mackay, Nick de Sieyes, Murray Einarson, Kevin Feris, Alex Pappas, Isaac Wood, Lisa Jacobson, Larry Justice, Mark Noske, John Wilson, Cherri Adair, and Kate Scow

Field experiments confirm the in situ transformation of MTBE to TBA stimulated by ethanol release to an aquifer and allow the transformation rate to be estimated.

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■ 2022

Adsorption of Humic Acid onto Nanoscale Zerovalent Iron and Its Effect on Arsenic Removal

Abul B. M. Giasuddin, Sushil R. Kanel, and Heechul Choi

A detailed investigation is presented of the interaction of HA and NZVI and its effect on groundwater chemistry; this is of great significance in groundwater with arsenic.

■ 2028

Evaluation of the Intrinsic Photocatalytic Oxidation Kinetics of Indoor Air Pollutants

Ignasi Salvadó-Estivill, David M. Hargreaves, and Gianluca Li Puma

Computational fluid dynamics modeling of the air flow in an integral reaction is combined with radiation field monitoring and photocatalytic reaction kinetics to yield pollutant-specific kinetic rate parameters independent of reactor geometry, radiation field, and fluid dynamics.

■ 2036

Variations in $^{13}C/^{12}C$ and D/H Enrichment Factors of Aerobic Bacterial Fuel Oxygenate Degradation

Mònica Rosell, Damià Barceló, Thore Rohwerder, Uta Breuer, Matthias Gehre, and Hans Hermann Richnow

The variability of isotope fractionation pattern upon aerobic degradation of ether oxygenates (MTBE, ETBE) by different bacterial isolates indicates the use of different degradation mechanisms.

2044

Efficient Heterogeneous Catalytic Reduction of Perchlorate in Water

Keith D. Hurley and John R. Shapley

Simple oxorhenium(VII) compounds, dispersed on a carbon support with Pd particles, form a heterogeneous catalyst that promotes transformation of perchlorate to chloride and water with hydrogen as the reducing agent.

■ 2050

Quantification and Modeling of the Elimination Behavior of Ecologically Problematic Wastewater Micropollutants by Adsorption on Powdered and Granulated Activated Carbon

Norman Nowotny, Bernhard Epp, Clemens von Sonntag, and Hans Fahlenkamp

Adsorption isotherms are determined for pharmaceuticals, X-ray contrast media, and industrial chemicals present or spiked into biologically treated wastewater, and the data are modeled.

■ 2056

Oxidation of *N*-Nitrosodimethylamine (NDMA) Precursors with Ozone and Chlorine Dioxide: Kinetics and Effect on NDMA Formation Potential

Changha Lee, Carsten Schmidt, Jeyong Yoon, and Urs von Gunten

Oxidation of NDMA precursors during water treatment is investigated with ozone and chlorine dioxide.

ECOTOXICOLOGY AND HUMAN ENVIRONMENTAL HEALTH

■ 2064

In Vitro Cytotoxicitiy of Silica Nanoparticles at High Concentrations Strongly Depends on the Metabolic Activity Type of the Cell Line

Jenq-Sheng Chang, Ke Liang B. Chang, Deng-Fwu Hwang, and Zwe-Ling Kong

The cytotoxicity of silica to human cells depends strongly on the metabolic activities of the cells, but it could be significantly reduced by synthesizing silica together with chitosan.

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