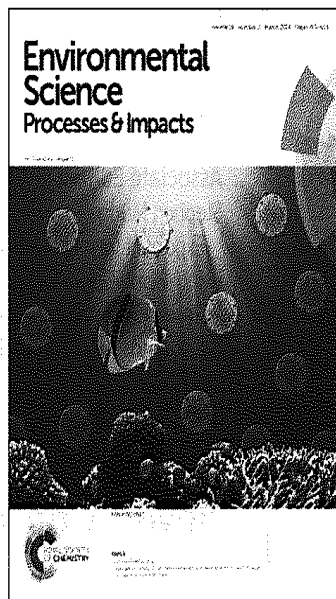


Cover
See Geraldine S. C. Turner *et al.*, pp. 393–403.
Image reproduced by permission of Geraldine S. C. Turner and Gary R. Fones from *Environ. Sci.: Processes Impacts*, 2014, 16, 393.



Inside cover
See Chintal Desai *et al.*, pp. 518–523.
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THEMED ISSUE ARTICLES

EDITORIAL

366

Advancing passive sampling of contaminants in environmental science

Philipp Mayer, Frank Wania and Charles S. Wong

Guest editors Philipp Mayer, Frank Wania and Charles Wong introduce the Passive sampling themed issue of *Environmental Science: Processes & Impacts*.



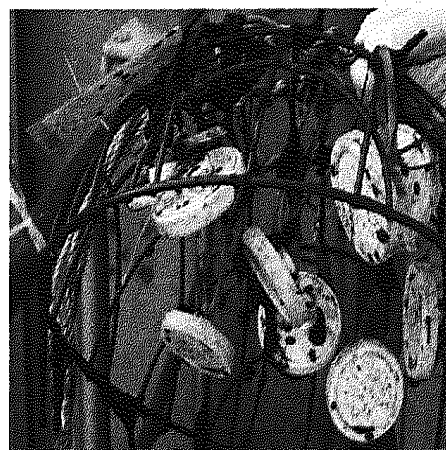
FOCUS

369

Measurement of environmental pollutants using passive sampling devices – an updated commentary on the current state of the art

Graham A. Mills,* Anthony Gravell, Branislav Vrana, Christopher Harman, H el ene Budzinski, Nicolas Mazzella and Tom a s Ocelka

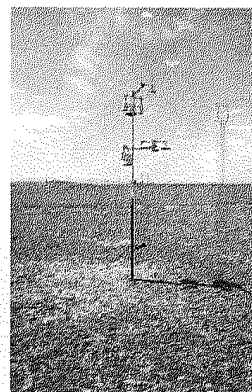
State-of-the-art of passive sampling techniques for environmental monitoring; future applications and directions for research.



A review of passive sampling systems for ambient air mercury measurements

Jiaoyan Huang, Seth N. Lyman, Jelena Stamenkovic Hartman and Mae Sexauer Gustin*

Application of passive sampling methods for measurement of Hg concentrations and deposition is useful for understanding sources and trends.

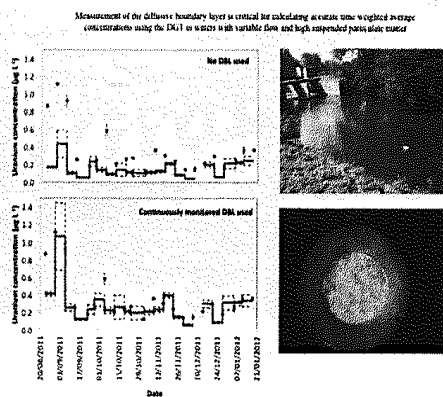


PAPERS

Evaluation of DGT as a long-term water quality monitoring tool in natural waters; uranium as a case study

Geraldine S. C. Turner, Graham A. Mills, Michael J. Bowes, Jonathan L. Burnett, Sean Amos and Gary R. Fones*

DGT can be used as a long-term water quality environmental monitoring tool, however extensive DBL measurements are recommended.



Neutral polyfluoroalkyl substances in the global Atmosphere

A. Gawor, C. Shunthirasingham, S. J. Hayward, Y. D. Lei, T. Gouin, B. T. Mmereki, W. Masamba, C. Ruepert, L. E. Castillo, M. Shoeib, S. C. Lee, T. Harner and F. Wania*

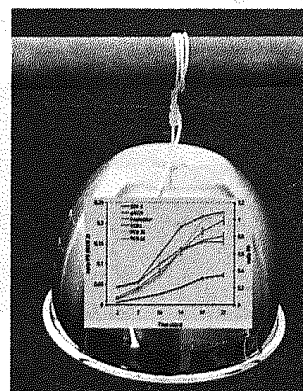
Active and passive air sampling confirms ubiquitous presence of fluorinated telomer alcohols, sulfonamides, and sulfonamidoethanols in the global atmosphere.



Field calibration of low density polyethylene passive samplers for gaseous POPs

Mohammed A. Khairy* and Rainer Lohmann

A field calibration study of low density polyethylene for measuring atmospheric concentrations of persistent organic pollutants was performed in East Providence (RI), USA.



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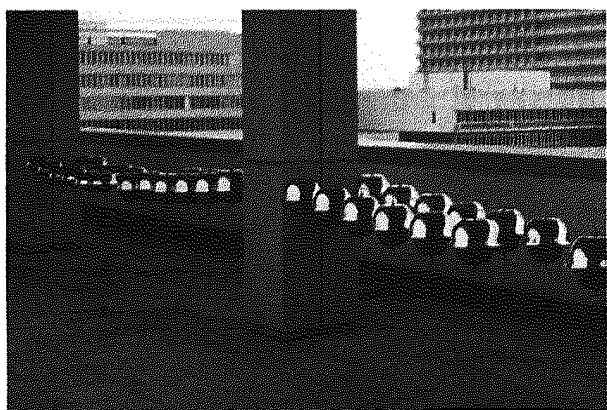


Testing flow-through air samplers for use in near-field vapour drift studies by measuring pyrimethanil in air after spraying

Trudyane S. Geoghegan, Kimberly J. Hageman* and Andrew J. Hewitt

Field evaluation of flow-through samplers indicates their viability as a wind-driven alternative to high-volume samplers in pesticide vapour drift studies.

433



Outdoor passive air monitoring of semi volatile organic compounds (SVOCs): a critical evaluation of performance and limitations of polyurethane foam (PUF) disks

P. Bohlin,* O. Audy, L. Škrdlíková, P. Kukučka, P. Příbylová, R. Prokeš, Š. Vojta and J. Klánová*

A polyurethane foam passive air sampler shows large inter-compound variability in sampling performance for semivolatile organic compounds in the outdoor environment.

445



Remedy performance monitoring at contaminated sediment sites using profiling solid phase microextraction (SPME) polydimethylsiloxane (PDMS) fibers

Courtney Thomas, David Lampert and Danny Reible*

A demonstration of solid phase microextraction techniques using polydimethylsiloxane fibers to assess *in situ* contaminated sediment remedy performance at three sites.

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Cluster analysis of passive air sampling data based on the relative composition of persistent organic pollutants

Xiande Liu* and Frank Wania

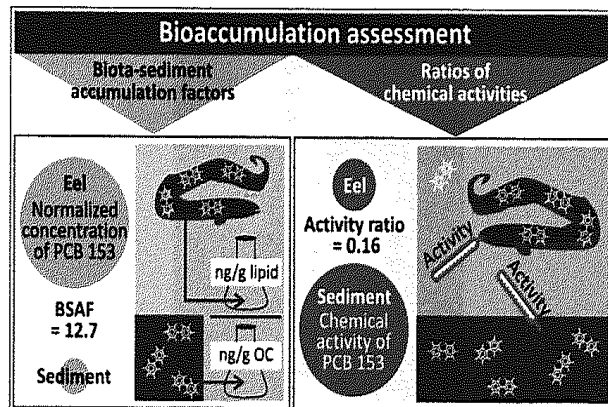
Cluster analyses of POP data distinguish sampling sites influenced by local sources from those with regional or continental POP fingerprints.

464

Silicone passive equilibrium samplers as 'chemometers' in eels and sediments of a Swedish lake

Annika Jahnke,* Philipp Mayer, Michael S. McLachlan, Håkan Wickström, Dorothea Gilbert and Matthew MacLeod

The potential of passive equilibrium sampling to study the thermodynamic controls on persistent organic chemicals in the environment is illustrated for bioaccumulation of HCB and PCBs in a Swedish lake.

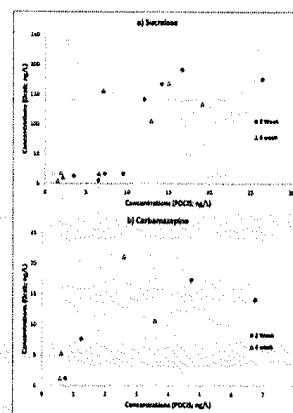


473

Monitoring for contaminants of emerging concern in drinking water using POCIS passive samplers

Chris Metcalfe,* M. Ehsanul Hoque, Tamanna Sultana, Craig Murray, Paul Helm and Sonya Kleywegt

Contaminants of emerging concern (CEC) have been detected in drinking water world-wide.

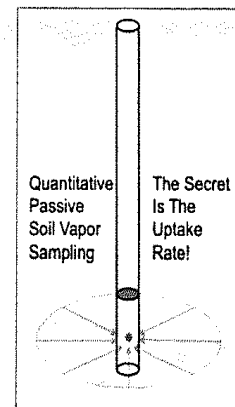


482

Quantitative passive soil vapor sampling for VOCs- part 1: theory

Todd McAlary,* Xiaomin Wang, Andre Unger, Hester Groenevelt and Tadeusz Górecki

Passive soil vapor sampling has been used for VOC assessment for decades, but the ability to determine concentrations from the mass of an analyte sorbed by the sampler has not been well established, until now.



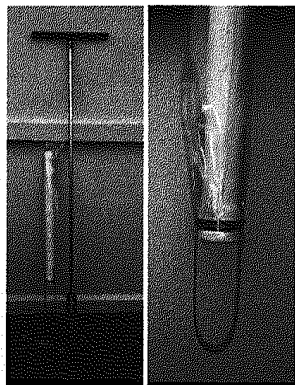
491

Quantitative passive soil vapor sampling for VOCs- part 2: laboratory experiments

Todd McAlary,* Hester Groenevelt, Suresh Seethapathy, Paolo Sacco, Derrick Crump, Michael Taday, Brian Schumacher, Heidi Hayes, Paul Johnson and Tadeusz Górecki

Passive diffusive samplers for VOC concentration monitoring can also be used under conditions similar to soil vapor sampling applications.





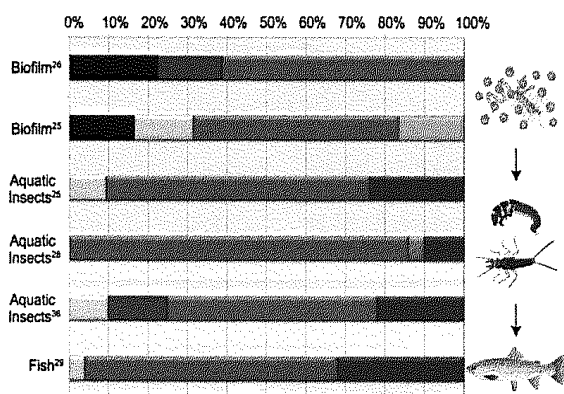
Quantitative passive soil vapor sampling for VOCs- part 3: field experiments

Todd McAlary,* Hester Groenevelt, Paul Nicholson, Suresh Seethapathy, Paolo Sacco, Derrick Crump, Michael Today, Heidi Hayes, Brian Schumacher, Paul Johnson, Tadeusz Górecki and Ignacio Rivera-Duarte

Passive soil vapor sampling can now be used to quantify concentrations of VOC vapors, no longer just the relative mass.

REGULAR RESEARCH ARTICLES

CRITICAL REVIEW

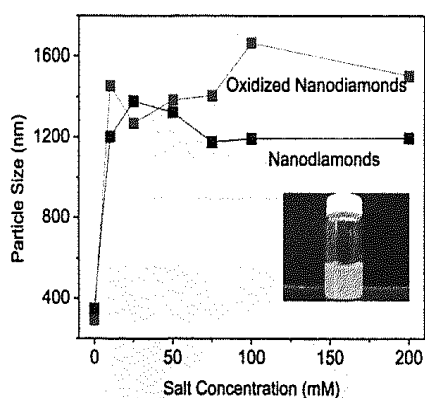


Fish toxicity testing with selenomethionine spiked feed – what's the real question being asked?

Mark C. Rigby,* A. Dennis Lemly and Russ Gerads

The US Environmental Protection Agency and several U.S. states and Canadian provinces are currently developing national water quality criteria for selenium that are based in part on toxicity tests performed by feeding freshwater fish a selenomethionine-spiked diet which may lead to a biased assessment of selenium toxicity under field conditions.

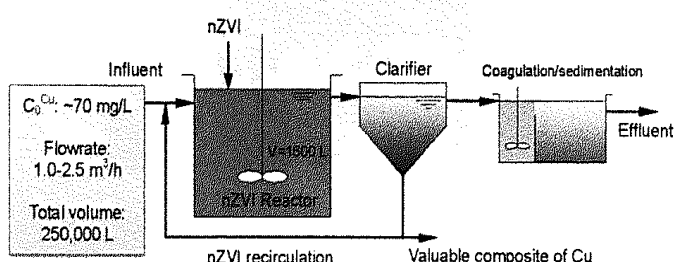
PAPERS



Aggregation behavior of nanodiamonds and their functionalized analogs in an aqueous environment

Chintal Desai, Kun Chen and Somenath Mitra*

The colloidal behavior of aqueous dispersions of detonation nanodiamonds (DNDs) and carboxylated nanodiamonds (DND-COOH) which were synthesized *via* a microwave process is presented.



Nanoscale zero-valent iron (nZVI) for the treatment of concentrated Cu(II) wastewater: a field demonstration

Shaolin Li,* Wei Wang, Weile Yan and Wei-xian Zhang

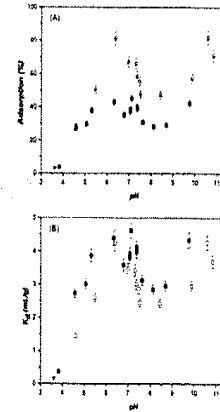
A field demonstration was conducted to assess the feasibility of nanoscale zero-valent iron for the treatment of wastewater containing high levels of Cu(II).

534

The adsorption behavior of U(vi) on granite

Q. H. Fan, L. M. Hao, C. L. Wang, Z. Zheng, C. L. Liu* and W. S. Wu*

The effects of pH, counter ions and temperature on the adsorption of U(vi) on Beishan granite (BsG) were investigated in the presence and absence of fulvic acid (FA) and humic acid (HA).

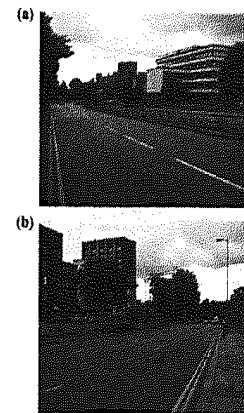


542

Mineral magnetic measurements as a particle size proxy for urban roadside soil pollution (part 1)

C. J. Crosby,* C. A. Booth and M. A. Fullen

The use of mineral magnetic concentration parameters (χ_{LF} , χ_{ARM} and SIRM) as a potential particle size proxy for soil samples collected from Wolverhampton (UK) is explored as an alternative means of normalizing particle size effects.

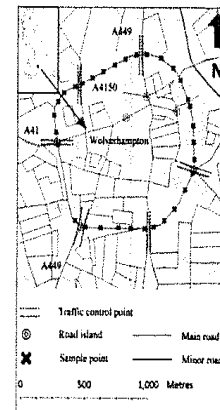


548

Potential linkages between mineral magnetic measurements and urban roadside soil pollution (part 2)

C. J. Crosby,* M. A. Fullen and C. A. Booth

Use of mineral magnetic concentration parameters (χ_{LF} , χ_{ARM} and SIRM) as a potential pollution proxy for soil samples collected from Wolverhampton (UK) is explored.

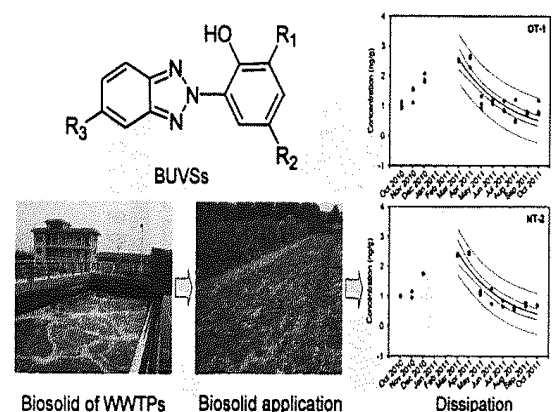


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Field dissipation and plant uptake of benzotriazole ultraviolet stabilizers in biosolid-amended soils

Hua-Jie Lai, Guang-Guo Ying,* Yi-Bing Ma, Zhi-Feng Chen, Feng Chen and You-Sheng Liu

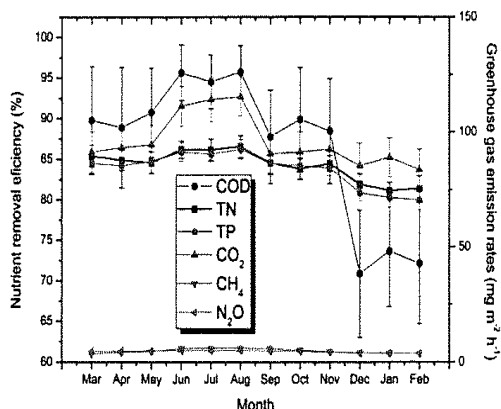
Benzotriazole ultraviolet stabilizers (BUVSs) were detected in the biosolid-amended soils, and showed slow dissipation in soil environments.



Biosolid of WWTPs

Biosolid application

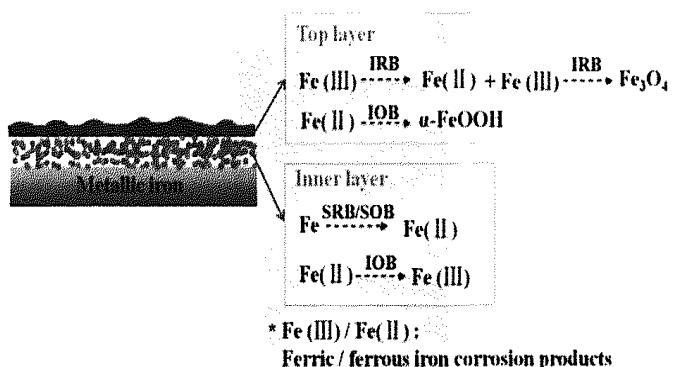
Dissipation



Effects of influent C/N ratios on wastewater nutrient removal and simultaneous greenhouse gas emission from the combinations of vertical subsurface flow constructed wetlands and earthworm eco-filters for treating synthetic wastewater

Yongjun Zhao, Yuejin Zhang,* Zhigang Ge, Changwei Hu and Hui Zhang

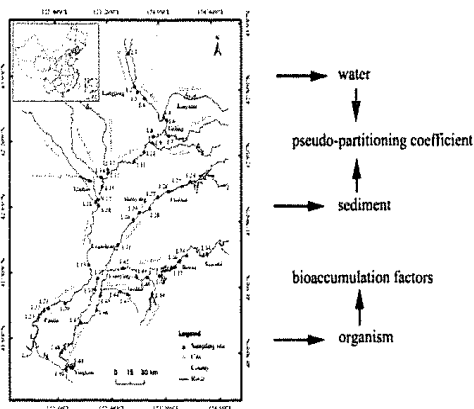
C/N ratio of 5:1 and VSFCW-EE combination exhibited the highest nutrient removal efficiency with the lowest GHG emission rate.



Formation and release behavior of iron corrosion products under the influence of bacterial communities in a simulated water distribution system

Huifang Sun, Baoyou Shi,* Darren A. Lytle, Yaohui Bai and Dongsheng Wang

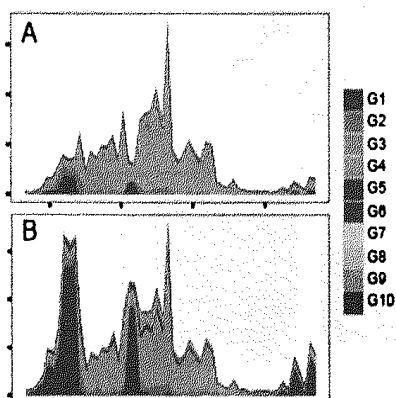
The development process and release behavior of iron corrosion products could be manipulated by the bacterial community in a biofilm.



Occurrence, distribution and bioaccumulation of antibiotics in the Liao River Basin in China

Yangwei Bai, Wei Meng,* Jian Xu, Yuan Zhang and Changsheng Guo

The occurrence, distribution and bioaccumulation of 19 antibiotics in water, sediment and organism samples from the Liao River Basin were investigated.



Weekly flow cytometric analysis of riverine phytoplankton to determine seasonal bloom dynamics

Daniel S. Read,* Michael J. Bowes, Lindsay K. Newbold and Andrew S. Whiteley

Flow cytometry (FCM) can be used for monitoring of phytoplankton dynamics in river catchments, providing high resolution measures of multiple phytoplankton groups including diatoms, chlorophytes, cryptophytes and cyanobacteria.

Levels of toxic arsenic species in native terrestrial plants from soils polluted by former mining activities

Sara García-Salgado* and M. Ángeles Quijano

Native terrestrial plants from polluted soils showed a high arsenic biotransformation rate although high concentration levels remained as water-soluble species.

