

Greenlist Bulletin

From the Toxics Use Reduction Institute
at the University of Massachusetts Lowell

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This is the weekly bulletin of the TURI Library at the University of Massachusetts Lowell. Greenlist Bulletin provides previews of recent publications and websites relevant to reducing the use of toxic chemicals by industries, businesses, communities, individuals and government. You are welcome to send a message to mary@turi.org if you would like more information on any of the articles listed here, or if this email is not displaying properly.



**Reducing Hazardous Chemicals in Consumer Products:
Proactive Company Strategies**

[Source: Journal of Cleaner Production, December 20, 2012](#)

Author: Caroline E. Scruggs

Laws governing chemical manufacture and use have historically been weak. Consequently, many argue that humans and the environment are not adequately protected from chemicals that could pose a risk to their health. In this environment of regulatory deficits, some proactive consumer product companies are voluntarily going beyond regulatory requirements to minimize use of currently unregulated, but potentially hazardous, chemicals in their products. These companies generally do not advertise their chemicals management efforts. Interviews with environmental managers from 20 multinational consumer product companies revealed ten common elements of proactive chemicals management strategies that were relevant and used across sectors. For instance, companies developed restricted substance lists of regulated and unregulated chemicals that were banned from their products; worked to find safer substitutes for chemicals of concern, sometimes through green chemistry initiatives; created tools to enhance communication through their supply chains; and required suppliers to provide full materials disclosure so that they understood the chemical content of their products. These findings document the best practices for chemicals management among proactive consumer product companies in the absence of effective chemicals regulations, and the 20 companies' chemicals management strategies revealed insights about the gaps in chemicals regulations and what consumer product companies across sectors need to fill those gaps. This information may be useful to business and industry representatives who are interested in minimizing product risks and to policy makers who may be unfamiliar with companies' challenges in making safer consumer products or how laws could be strengthened to support their efforts. The results could also help inform the design of modernized laws that promote chemicals management in all supply chains to

better protect human and environmental health from hazardous chemicals.

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Counting the cost of mercury pollution

[Source: *Environmental Health*, January 7, 2013](#)

Cleaning up mercury pollution and reducing prenatal exposure to the neurotoxin methylmercury (MeHg) could save the European Union €10,000 million per year, finds a new study published in BioMed Central's open access journal *Environmental Health*. New estimates suggest that between 1.5 and 2 million children in the EU are born each year with MeHg exposures above the safe limit of 0.58µg/g and 200,000 above the WHO recommended maximum of 2.5µg/g.

While some mercury occurs naturally in the environment for example from volcanic eruptions or forest fires, most is generated by burning fossil fuels. Marine and fresh water species bioconcentrate MeHg; consequently the main source of exposure for humans is from eating fish.

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Read article in *Environmental Health*: ["Economic benefits of methylmercury exposure control in Europe: Monetary value of neurotoxicity prevention."](#)

Study Finds Flame Retardant Pollutants at Far-Flung Locations

[Source: Indiana University, January 8, 2013](#)

BLOOMINGTON, Ind. -- Chemicals used as flame retardants are present as environmental pollutants at locations around the globe, including remote sites in Indonesia, Nepal and Tasmania, according to a study by researchers from the Indiana University School of Public and Environmental Affairs.

The study, published this month in the journal *Environmental Science and Technology*, makes use of a novel but highly effective sampling technique: measuring concentrations of the chemicals in the bark of trees, which absorbs compounds in both vapor and particle phases.

[Read more...](#)

Read article in *Environmental Science and Technology*: ["Brominated and Chlorinated Flame Retardants in Tree Bark from Around the Globe."](#)

Also in *ES&T*: ["Tribromophenoxy Flame Retardants in the Great Lakes Atmosphere."](#)

Natural Products for Materials Protection: Corrosion and Microbial Growth Inhibition Using *Capsicum frutescens* Biomass Extracts

[Source: *ACS Sustainable Chemistry & Engineering*, December 17, 2012](#)

Authors: Emeka E. Oguzie, Kanayo L. Oguzie, Chris O. Akalezi, Irene O. Udeze, Jude N. Ogbulie, and Victor O. Njoku

Extracts of the fruit of *Capsicum frutescens* (CF) were assessed for anticorrosion and antimicrobial activity. The anticorrosion effect of the ethanol extract on low carbon steel in acidic media was studied experimentally using gravimetric, impedance, and polarization techniques, while the antimicrobial efficacy of ethanol, methanol, water, and petroleum spirit extracts respectively against the corrosion-associated sulfate reducing bacteria (SRB), *Desulfotomaculum* species, was assessed using the agar disc diffusion method. CF extract effectively inhibited both corrosion and SRB growth due to the action of the phytochemical constituents present therein, including alkaloids (8.8%), tannins (0.4%), and saponins (39.2%). The corrosion process was inhibited by adsorption of the extract organic matter on the steel surface, whereas the antimicrobial effect results from disruption of the growth and essential metabolic functions of the SRB. Molecular dynamics (MD) simulations were performed to theoretically illustrate the electronic structure and adsorption behavior of the active alkaloidal constituents of CF extract,

capsaicin and dihydrocapsaicin, and afforded molecular level insights on their individual contributions to the corrosion inhibiting action of the extract.

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Evaluating Green Projects: Modeling Improves Economic Benefits

[Source: Chemical Engineering, July 1, 2012](#)

Authors: Allen Williams and Ken Dunwoody

The ability to model a process to see if it meets project requirements and is economically viable can help to enhance its conceptual design and management approval. Modeling allows engineers to identify promising processes and to weed out less-promising ones. This article walks the reader through the use of modeling to evaluate an environmentally oriented (green) engineering project...

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