

Greenlist Bulletin

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

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This is the bi-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.



Commonly Used Chemicals Come Under New Scrutiny

[Source: The New York Times, May 1, 2015](#)

Authors: Eric Lipton and Rachel Abrams

A top federal health official and hundreds of environmental scientists on Friday voiced new health concerns about a common class of chemicals used in products as varied as pizza boxes and carpet treatments.

The concerted public campaign renews a years-old debate about a class of chemicals known as poly- and perfluoroalkyl substances, or PFASs. After studies showed that some PFASs lingered in people's bodies for years, and appeared to increase the risks of cancer and other health problems, the chemical manufacturer DuPont banned the use of one type of PFAS in its popular Teflon products, and other companies followed suit.

At issue now are replacement chemicals developed by those manufacturers and used in thousands of products, including electronics, footwear, sleeping bags, tents, protective gear for firefighters and even the foams used to extinguish fires.

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More than Cosmetic Changes: Taking Stock of Personal Care Product Safety

[Source: *Environmental Health Perspectives*, May 2015](#)

Author: Rebecca Kessler

Small glass jars full of liquid soap are neatly packed in a refrigerator-size heating chamber. Scanning the jars, Trisha Bonner reaches in and plucks one out. Unlike most of the other jars, whose contents appear thick and pearlescent, this one contains soap that has gone clear and watery. A thin layer of tiny beads, fine as sugar, dusts the bottom -- exfoliating beads that have fallen out of suspension. "The scientist will be kind of sad to see this," Bonner says.

The jar holds a prototype of one of Johnson & Johnson's revamped Clean and Clear® facial cleansers. It's one of hundreds of products the company is reformulating to make good on a 2011 promise to eliminate or further reduce trace amounts of several ingredients that have drawn safety concerns. Having successfully omitted substances that release small quantities of the carcinogen formaldehyde and reduced levels of the potentially carcinogenic impurity 1,4-dioxane in its baby products in 2013, the company is now working on making further changes across its baby and adult product lines by the end of this year.

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Chemical Footprinting: Identifying Hidden Liabilities in Manufacturing Consumer Products

[Source: *Environmental Health Perspectives*, May 2015](#)

Author: Lindsey Konkel

In an unassuming low-rise in the Boston suburbs, Mark Rossi tinkers with a colorful dashboard on his laptop screen while his border collie putters around his feet. Rossi is the founder of BizNGO and Clean Production Action, two nonprofit collaborations of business and environmental groups to promote safer chemicals. He's also the creator of tools that he hopes will solve a vexing problem -- how to get a handle on companies' overall toxic chemicals usage.

Consider the screen of Rossi's laptop. Chances are the company that manufactured the product has crunched the numbers on the total amount of carbon, water, and land associated with getting it into the office -- from the manufacturing of the electronic components to the packaging and transportation to retail outlets. But the total amount of toxic chemicals that contributed to the screen's design and production might be a more difficult question to answer. ...

Corporate chemicals management policies have traditionally revolved around compliance with government regulations -- making sure certain chemicals don't exist in products over a mandated threshold. But simply being in compliance may not be enough to protect a company from hidden chemical liabilities in products as regulations shift and consumers, advocates, and investors demand increasing levels of transparency, Rossi explains. New frameworks are now emerging to assess a company's chemical footprint.

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Synthesis of Soy-Polyols Using a Continuous Microflow System and Preparation of Soy-based Polyurethane Rigid Foams

[Source: *ACS Sustainable Chemistry & Engineering*, April 30, 2015](#)

Authors: Dong Ji, Zheng Fang, Wei He, Kai Zhang, Zhenyang Luo, Tingwei Wang, and Kai Guo

A soy-polyol labeled Polyol-m was synthesized directly from soybean oil in a continuous microflow system equipped with self-designed oil-water separators and using a reported scheme for epoxidation under [the following] optimized conditions for hydroxylation: sulfuric acid concentration of 10 wt %, residence time of 13 min, and temperature of 75 °C. Another soy-polyol labeled Polyol-f was also synthesized in a conventional flask from commercially available epoxidized soybean oil as a raw material for the purpose of comparison. Polyol-f had a wider molecular weight distribution, higher viscosity, and lower hydroxyl number than Polyol-m because of the more substantial oligomers introduced by oligomerization, which was confirmed by Fourier transform infrared (FTIR) and gel permeation chromatography (GPC). In addition, the corresponding soy-based polyurethane rigid foams labeled PU-m and PU-f were prepared. PU-m had fine, uniform, and closed-cell morphology, and it contained higher cross-linking due to such characteristics as lower viscosity and higher hydroxyl number; these characteristics were beneficial for the foam properties, including compression strength, thermal insulation, dimensional stability, and thermostability.

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High Court Weighs EPA Mercury Rule

Source: [Chemical & Engineering News, May 4, 2015](#)

Author: Glenn Hess

The Environmental Protection Agency's first-ever regulation limiting releases of mercury and other toxic air pollution from power plants is facing its final legal hurdle. The Supreme Court is considering whether EPA went too far when it finalized a rule to protect public health that the agency estimates will cost electric utilities and their customers almost \$10 billion per year.

Mercury is a potent neurotoxin; tiny doses can harm children's development and pose risks for fetuses of pregnant women. Coal-burning power plants, which are the largest source of mercury in the U.S., are facing a series of EPA regulations that require owners to invest in pollution controls or shut down aging facilities.

The justices are evaluating industry and state arguments that EPA violated the Clean Air Act by failing to consider the potential financial burden before it decided to issue those emission limits. "Congress did not intend for EPA to act with deliberate indifference to cost when answering the basic regulatory question of whether it is appropriate to regulate," the plaintiffs' brief asserts.

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Metal Oxide Nanoparticles Induce Minimal Phenotypic Changes in a Model Colon Gut Microbiota

Source: [Environmental Engineering Science, April 24, 2015](#)

Authors: Alicia A. Taylor, Ian M. Marcus, Risa L. Guysi, Sharon L. Walker

Nanoparticles (NPs) are becoming prevalent in consumer goods, including foods and cosmetics. Understanding the interactions between NPs and bacteria in an engineered model colon can indicate potential impacts of NP exposure on the gut, and therefore overall human health. Human microbiome health has important implications to overall individual health. This work aims at quantifying the phenotypic response to NP ingestion of a model microbial community within a model colon. ... Results indicate that NPs cause the microbial community's phenotype to partition into three distinct phases: initial conditions, a transition period, and a homeostatic phase, with the NP-exposed community displaying significant differences ($p < 0.05$) from the unexposed community in multiple phenotypic traits. Notably, phenotypes, including short-chain fatty acid (SCFA) production, hydrophobicity, sugar content of the extracellular polymeric substance, and electrophoretic mobility, which indicate changes in the community's stability, were affected by the NPs. TiO_2 NPs led to extended phenotypic transformations for hydrophobicity when compared with the other NPs, likely due to its lack of dissociation and greater stability. Overall, the NPs caused nonlethal, significant changes to the microbial community's phenotype, which may be related to overall health effects.

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ASBC Announces Release of Safer Chemicals Report

Source: [American Sustainable Business Council, 2015](#)

The American Sustainable Business Council (ASBC) announced the release of a new safer chemicals report on Monday, May 4. The report, commissioned by ASBC and the Green Chemistry & Commerce Council and developed by independent research firm Trucost, found that the market for safer chemicals is estimated to have 24 times the growth of conventional chemicals market worldwide, from 2011 to 2020, among other findings.

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Access report, "[Making the Business & Economic Case for Safer Chemistry](#)".

Effort Begins to Reduce Children's Exposure to Lead Paint in Nashua, N.H. Area

Source: [U.S. Environmental Protection Agency, April 27, 2015](#)

BOSTON – In an effort to improve compliance with laws that protect children from lead paint poisoning, EPA sent letters earlier this month to over 300 home renovation and painting contractors,

property management companies and landlords in and around Nashua, N.H. announcing a compliance assistance and enforcement initiative. The EPA letter outlines steps EPA is taking to increase compliance on the part of these entities with the federal lead-based paint Renovation, Repair and Painting (RRP) Rule under the Toxic Substances Control Act.

EPA's RRP Rule is designed to prevent children's exposure to lead-based paint and/or lead-based paint hazards resulting from renovation, repair and repainting projects in residences, schools and other buildings where children are likely to be. The Rule requires individual renovators and firms performing renovations to be trained and certified so that they follow lead safe work practices during renovations of pre-1978 housing and child-occupied facilities in order to protect children from lead poisoning.

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Study: Environmental exposure to hormones used in animal agriculture greater than expected

[Source: Indiana University Bloomington, May 8, 2015](#)

BLOOMINGTON, Ind. -- Research by an Indiana University environmental scientist and colleagues at universities in Iowa and Washington finds that potentially harmful growth-promoting hormones used in beef production are expected to persist in the environment at higher concentrations and for longer durations than previously thought.

"What we release into the environment is just the starting point for a complex series of chemical reactions that can occur, sometimes with unintended consequences," said Adam Ward, lead author of the study and assistant professor in the IU Bloomington School of Public and Environmental Affairs. "When compounds react in a way we don't anticipate -- when they convert between species, when they persist after we thought they were gone -- this challenges our regulatory system."

Numerical simulations performed in this study can help to predict the potential impact of environmental processes on contaminant fate to more effectively understand the potential for these unexpected effects.

This study illustrates potential weaknesses in the U.S. system of regulating hazardous substances, which focuses on individual compounds and often fails to account for complex and sometimes surprising chemical reactions that occur in the environment.

[Read more...](#)

See original study in *Nature Communications*, "[Coupled reversion and stream-hyporheic exchange processes increase environmental persistence of trenbolone metabolites](#)".

Persistent Industrial Pollutants Could Stymie Songbird Migration

[Source: Chemical & Engineering News, May 5, 2015](#)

Author: Deirdre Lockwood


In recent decades, many common migratory songbirds have declined in population. Several factors could explain this drop-off, including habitat loss, climate change, feline predators, and wind turbines. But a new study finds that polychlorinated biphenyls (PCBs), toxic industrial pollutants, may share some of the blame by affecting birds' ability to migrate.

PCBs were used during the 20th century in products such as electrical equipment, insulation, paints, and plastics. Some of the compounds are neurotoxic and can also act as endocrine disruptors. Although manufacturing of PCBs has been banned in the U.S. and Canada for more than 35 years, the compounds persist in the environment and bioaccumulate through food webs.

Many previous studies have shown that endocrine disruptors can interfere with reproduction in birds. But Christy A. Morrissey, an ecotoxicologist at the University of Saskatchewan, thought that the pollutants might also directly influence migration, which is partly regulated by hormones. So she and her team raised common songbirds, European starlings, and monitored how an industrial PCB mixture called Aroclor 1254 affected their migratory behavior.

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See original article in *Environmental Science & Technology*, "[Developmental Exposure to Aroclor](#)



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