

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.



Hormones Disrupted: Toxic Phthalates in Maine People

[Source: Alliance for a Clean and Healthy Maine, March 18, 2014](#)

Scientists have shown that phthalates reduce testosterone levels and thyroid hormones critical to healthy development. Dozens of human health studies now link phthalate exposure to serious health effects, including birth defects of male sex organs, learning and behavior problems in children, and increased rates of asthma and allergies. Phthalates harm reproductive health through reduced fertility, premature birth, early puberty in girls, breast growth in boys, and increased risk of prostate and testicular cancer. The phthalates are also "obesogens" that interfere with fat-related hormones linked to obesity and metabolic disorder.

[Read more...](#)

Access full report [here](#).

Read press release on the report, "[New Report: Maine people are polluted with phthalates](#)".

Toxicology: The plastics puzzle

[Source: Nature, April 23, 2014](#)

Author: Josie Glausiusz

A stroll down the aisles of a US supermarket reveals a modest victory for consumer activism. In the baby-products section, plastic baby bottles, spill-proof cups and miniature cutlery are proudly marked 'BPA-free' – a sign that they no longer contain the compound bisphenol A, found in many plastics. A range of blenders and water bottles in the kitchenware aisle are also untainted by the chemical, as are a few cans of beans tucked away in the organic foods section. And customers filling their baskets with these BPA-free treasures may even receive a BPA-free receipt at the cash register. ...

In the quest to replace BPA, finding an alternative for food and drink cans has proved particularly vexing. Creating a cheap lining for tins suitable for a range of foods – from beans to tomatoes to haggis curry – is no simple matter. Not only must the packaging prevent bacteria and fungi from attacking the food, the can's lining must also stop the food from attacking and corroding the can. Moreover, when metal comes into contact with food, it can ruin the flavour. "If your food tastes funny, but you tell people it's safer, are they going to believe that?" says Daniel Schmidt, a plastics engineer at the University of Massachusetts in Lowell.

Manufacturers also prefer linings that block sulphur compounds – found in proteins, preservatives and pesticides – from reacting with the metal and forming unattractive iron or tin sulphide stains. No BPA-free lining has yet emerged that can accomplish all of this. "You have to have a special can and a special coating for every class of food," Schmidt says. "It gets extremely cumbersome and quite expensive."

[Read more...](#)

Great Lakes PBDE Reduction Project

[Source: Great Lakes Commission des Grands Lacs, April 2014](#)

For the past several decades, prior to being banned or phased out in Europe, Canada and the United States, polybrominated diphenyl ethers (PBDEs) were used as flame retardants (FRs) in a host of products. Since they are not chemically bound to plastics, foam, fabrics, and other materials to which they were added, PBDEs can migrate from products into our indoor and outdoor environments. This, in turn, can result in direct human exposure to these substances as well as contamination of soils, wastewater, waterbodies, biota, and food supplies. Epidemiological evidence has found associations between PBDE exposure and altered concentrations of thyroid hormones, decreased fertility in adults, and lowered IQ in children.

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See summary papers:

- [PBDE Product Inventory](#)
- [PBDE Alternatives Assessment](#)
- [PBDE Reduction Metrics](#)

TURI's Note: Our Deputy Director, Liz Harriman, served as a project advisory committee member.

Effective April 1, 2014 Boston has a Revised Upholstered Furniture, Molding Seating and Re-upholstered Furniture Policy

[Source: City of Boston, April 2014](#)

Effective April 1, 2014 the Boston Fire Department shall modify its upholstered seating regulations to more closely align with the current state regulations: 527 CMR 29, "Upholstered Furniture, Molded Seating and Re-upholstered Furniture". This change will effectively reduce the number of regulated use groups in the City of Boston.

Although this modified policy closely follows the requirements of the Commonwealth of Massachusetts Regulations, there are still some notable exceptions that shall be strictly enforced.

This policy is subject to modification at the discretion of the Boston Fire Marshal.

[Read more...](#)

Also see from CBS San Francisco, "[Chemical-Free Couch Cushions Now Available in California](#)", and from the *Boston Globe*, "[Flammability rules face new questions](#)".

Sustainability and performance in textiles: can you have it all?

[Source: *The Guardian*, April 10, 2014](#)

Author: Deidre Hoguet

Consumers are increasingly considering the sustainability of their purchases as they gain access to an array of fabrics that are practically self-cleaning. Is it possible to make a sustainable and high-performance fabric -- or are these two things mutually exclusive?

Broadly speaking, the answer lies in four main factors: raw material extraction, textile production, added chemistry and end-of-life.

Raw material extraction, for example, addresses the land and water used to grow natural fibers like cotton and wool, or the impacts of extracting fossil fuels for synthetic fibers such as polyester or nylon.

Production considerations include the water and energy used for manufacturing, the impact of production waste and a company's social responsibility towards its workers and the communities that surround its production facilities. Added chemistries, including dyes, finishes and coatings, may impact the health of textile workers as well as consumers of the final product.

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Solvent Substitution Strategies for Finishers

[Source: *Products Finishing*, April 1, 2014](#)

Author: Darren Williams

The cleaning, machining, adhesives, coatings, and inks industrial sectors have all been affected by restrictions on ozone-depleting (OD) solvents, hazardous air pollutants (HAPs), smog-producing volatile organic carbons (VOCs), and solvents with a high global warming potential (GWP).

Along with a desire to reduce flammability, enhance worker health and safety, and reduce costs, the solvent selection process has become increasingly complex. In-house evaluation of alternative solvents can be aided by understanding: 1) the Hansen solubility parameters of surfaces, soils and solvents; 2) solvent selection to fit within an EHS profile; and 3) solvent blending to maximize performance.

[Read more...](#)

See continuation of article, including equations and data tables [here](#).

TURI's Note: The Toxics Use Reduction Institute Cleaning Laboratory has the Hansen solubility parameter software on-site.

Coalition of states opposes language in Chemicals in Commerce Act

[Source: *Legal Newsline Legal Journal*, April 23, 2014](#)

Author: Bryan Cohen

BOSTON (Legal Newsline) -- Massachusetts Attorney General Martha Coakley joined a coalition of states on Thursday in sending a letter urging leaders of the House of Representatives to object to language in the proposed Chemicals in Commerce Act.

Coakley and 12 other attorneys general alleged the proposed bill would strip states of the power to regulate toxic chemicals and enforce protections against toxic exposures. The bill would make changes to the Toxic Substances Control Act.

"Our federal toxics law is more than 35 years old and in obvious need of reform to ensure that our

citizens, particularly those most vulnerable, are protected," Coakley said. "While I applaud the ongoing bipartisan efforts in Congress to modernize the TSCA, the ability of individual states to protect the public must not be sacrificed in the process."

[Read more...](#)

Emerging Contaminant or an Old Toxin in Disguise? Silver Nanoparticle Impacts on Ecosystems

Source: [Environmental Science & Technology, April 2, 2014](#)

Authors: Benjamin P. Colman, Benjamin Espinasse, Curtis J. Richardson, Cole W. Matson, Gregory V. Lowry, Dana E. Hunt, Mark R. Wiesner, and Emily S. Bernhardt

The use of antimicrobial silver nanoparticles (AgNPs) in consumer-products is rising. Much of these AgNPs are expected to enter the wastewater stream, with up to 10% of that eventually released as effluent into aquatic ecosystems with unknown ecological consequences. We examined AgNP impacts on aquatic ecosystems by comparing the effects of two AgNP sizes (12 and 49 nm) to ionic silver (Ag⁺; added as AgNO₃), a historically problematic contaminant with known impacts. Using 19 wetland mesocosms, we added Ag to the 360 L aquatic compartment to reach 2.5 mg Ag L⁻¹. Silver treatments and two coating controls were done in triplicate, and compared to four replicate controls. All three silver treatments were toxic to aquatic plants, leading to a significant release of dissolved organic carbon and chloride following exposure. Simultaneously, dissolved methane concentrations increased forty-fold relative to controls in all three Ag treatments. Despite dramatic toxicity differences observed in lab studies for these three forms of Ag, our results show surprising convergence in the direction, magnitude, and duration of ecosystem-scale impacts for all Ag treatments. Our results suggest that all forms of Ag changed solute chemistry driving transformations of Ag which then altered Ag impacts.

[Read more...](#)

Children's products tested for toxic chemicals

Source: [State of Washington, Department of Ecology, April 14, 2014](#)

OLYMPIA -- Tests on more than 200 children's products sold in Washington show most manufacturers are following laws that regulate the use of toxic chemicals.

Though, in some of the children's products tested, the state Department of Ecology found 15 potential violations on phthalates and seven potential violations on lead or cadmium. They also found two violations on toxic metals in packaging that came with children's products.

Ecology notified manufacturers of potential violations and is working with state and federal partners to ensure compliance.

"Testing products is just one piece of a much larger toxics puzzle," said Carol Kraege, who leads Ecology's work to reduce toxics threats. "We're doing our best to put the pieces together and figure out where toxic chemicals are used and how they are affecting us."

Ultimately, Kraege says that the smartest, cheapest and healthiest way to protect people and the environment is to find safer alternatives for these chemicals.

[Read more...](#)

Also see from Environmental Working Group, "[Most U.S. Apples Coated With Chemical Banned In Europe](#)".

Baylor University Scientists Aim to Design Safer Chemicals for Humans and Environment with Multimillion Dollar Grant

Source: [BioNews Texas, April 11, 2014](#)

Author: Rafaela Relvas

Professor of environmental science and biomedical studies in Baylor University's College of Arts & Sciences, Bryan W. Brooks, Ph.D., who is also director of the environmental science graduate program and the environmental health science program, has been announced as the lead researcher in a research core that will undertake a four-year, \$4.4 million project that will seek to

design less-toxic chemicals for both humans and the environment. ...

The four-university interdisciplinary team -- the Molecular Design Research Network (MoDRN) -- will develop tools that help molecule designers predict toxic properties of new and existing chemicals, and modify their designs to reduce risks while maintaining their effectiveness.

According to Brooks, one of the goals of this project is to leverage lessons learned from designing safer pharmaceuticals to identify attributes of industrial chemicals that could be designed to also be safer for public health and the environment.

Currently underway, the project is divided into three parts: research, outreach, and education. The research component will focus on the creation of computer models and a public database that will help in the design of new chemicals to assess whether a molecule is likely to cause toxicity. Education and outreach efforts, which are coordinated at Baylor by Melissa Mullins, environmental educator at CRASR, will engage high school students, undergraduates, teachers, and practitioners.

[Read more...](#)

Also read press release from the U.S. Environmental Protection Agency (EPA) regarding other awards from EPA and the National Science Foundation (NSF), "[EPA Awards Over \\$9 Million to Universities for Research to Help Predict the Implications of Chemicals on Human Health and the Environment.](#)"

Toxic mercury pollution limits survive major court challenge

[Source: Environmental Defense Fund, April 15, 2014](#)

Authors: Pamela Campos and Mandy Warner

Some environmental threats are hard to explain. Toxic mercury is not. A dangerous neurotoxin that threatens young children, developing babies, and others, almost everyone reacts viscerally at the idea of ingesting it. And the scientific evidence endorses that instinctive response.

That's why today's decision by a federal court to uphold the EPA's Mercury and Air Toxics rule is cause for celebration. For decades, power plants have been spewing out mercury. It ends up in our lakes and rivers, in fish, and ultimately in our bodies. It's been closing favorite fishing holes and, more ominously, delaying mental development for our children. Even spiders in the Sonoran desert and trout in Colorado's highest mountain lakes are affected.

When the EPA finally issued rules under the Clean Air Act to limit mercury pollution, the owners of the dirtiest power plants sued to stop it. Just like with every other major air pollution rule, they claimed it would be unaffordable, ignoring clear evidence that clean air protections are consistently shown to have public health benefits that far exceed the pollution control costs.

[Read more...](#)

Also see from Environmental Defense Fund an interactive tool, "[Toxics Across America map](#)".

Why Rare Earth Recycling is Rare (And What We Can Do About It)

[Source: *Ensisia*, April 7, 2014](#)

Author: Jessica Marshall

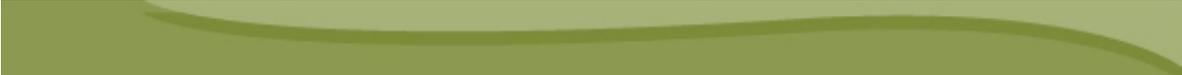
Earbuds, touch screens, CFLs with a warm glow, rechargeable batteries and power windows: Most of us take these things for granted. When we do, we also take for granted a group of elements called rare earth metals, whose special electronic and magnetic properties make them a key component of many 21st century technologies. These 17 elements are actually plentiful enough -- you probably have some in your backyard -- but except for a few ore deposits, they are found in nature in low concentrations that make them difficult to collect. Since they are integral parts of cell phones, hard drives, hybrid cars, wind turbines and other products with skyrocketing demand, rare earth metals face soaring demand, too.

As recently as 2010, China produced about 97 percent of the world's supply of rare earth elements. That year the country decided to limit exports, which drove prices through the roof. ...

Recycling rare earth elements isn't as easy as recycling glass or plastic -- there are challenges at nearly every level.

For one thing, the elements are present in small amounts in things like cell phones. As parts get smaller, so do the amounts of material used. In a touch screen, for example, the elements are distributed throughout the material at the molecular scale.

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Please send a message to mary@turi.org if you would like more information on any of these resources. Also, please tell us what topics you are particularly interested in monitoring, and who else should see Greenlist. An online search of the TURI Library catalog can be done at <http://library.turi.org> for greater topic coverage.

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