

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.



Get Thee Behind Us, Corrosion

[Source: Innovation, April/May 2013](#)

Author: Paul J. Battista

...An award-winning, patented technology developed by NETL metallurgists Paul Jablonski and David Alman provides a simple, low-cost and robust method for applying cerium oxide slurry to a variety of metal surfaces. The slurry, in combination with an activator compound, can be applied to the surface of a metal component by brushing, spraying or dipping. This low-cost process ensures a uniform coating on parts of complex shapes that are difficult to coat using traditional methods. Analysis of the coatings after thermal treatment showed that cerium oxide reacts with the metal surface to form a cerium-rich layer, resulting in a protective surface layer that greatly slows the rate of corrosion. In most cases, the cerium surface treatment improved corrosion resistance by a factor of two to three, and with some alloys it resulted in an order of magnitude improvement in performance. This inexpensive process protects stainless steel and other metal surfaces from heat-induced corrosion, increasing the useable lifespan of system components.

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Public Wants Labels for Food Nanotech -- and They're Willing to Pay for It

[Source: North Carolina State University, October 28, 2013](#)

Author: Matt Shipman

New research from North Carolina State University and the University of Minnesota finds that people in the United States want labels on food products that use nanotechnology -- whether the nanotechnology is in the food or is used in food packaging. The research also shows that many people are willing to pay more for the labeling.

"We wanted to know whether people want nanotechnology in food to be labeled, and the vast majority of the participants in our study do," says Dr. Jennifer Kuzma, senior author of a paper on the research and Goodnight-Glaxo Wellcome Distinguished Professor of Public Administration at NC State. "Our study is the first research in the U.S. to take an in-depth, focus group approach to understanding the public perception of nanotechnology in foods."

The researchers convened six focus groups -- three in Minnesota and three in North Carolina -- and gave study participants some basic information about nanotechnology and its use in food products. Participants were then asked a series of questions addressing whether food nanotechnology should be labeled. Participants were also sent a follow-up survey within a week of their focus group meeting.

Study participants were particularly supportive of labeling for products in which nanotechnology had been added to the food itself, though they were also in favor of labeling products in which nanotechnology had only been incorporated into the food packaging.

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Scanning apps help warn of chemicals in cosmetics

[Source: *Chicago Tribune*, October 30, 2013](#)

Author: Natasha Baker

Consumers worried about what might be lurking within their cosmetics and skin care products can turn to new applications that scan bar codes to review the items for safety.

Each day women are exposed to about 168 chemicals in beauty products, according to the Environmental Working Group, a Washington-based health research and advocacy group that looks into toxic chemicals.

Think Dirty, a free iPhone app, gives a product a score after scanning the bar code for ingredients and chemicals. . . .

The score indicates whether a product has any harmful ingredients and allergens. The app also lists each ingredient and its potential effect on health, using sources such as the National Library of Medicine's Hazardous Substances Data Bank, the Environmental Working Group and the David Suzuki Foundation, a Canadian environmental group.

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Massachusetts Toxics Use Reduction Act: Reducing Toxic Waste and Saving Money

[Source: *Physicians for Social Responsibility - Environmental Health Policy Institute*, October 18, 2013](#)

Authors: Rachel Massey and Rick Reibstein

A number of states have been in the forefront of developing chemicals policy in the US. The states have taken the lead in regulating toxic chemicals in manufacturing and in products, and have served as the "laboratories of democracy" where a variety of policy approaches have been tested.

The proposed Chemical Safety Improvement Act (CSIA) includes language that would preempt state regulation of chemicals in many cases. Preempting state-level regulation would weaken the ability of states to protect their citizens and could cripple some of the country's most successful centers of chemicals policy innovation.

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General Framework for Safer Chemical Alternatives Attracts 100 Signatories

Source: *Occupational Safety & Health Reporter*, October 25, 2013

Author: Robert lafolla

More than 100 representatives of businesses, universities, governments and environmental groups have endorsed a set of principles to steer manufacturers and retailers away from hazardous chemicals and toward safer alternatives, the authors of the principles announced Oct. 17.

The Commons Principles for Alternatives Assessment provide a framework for companies to replace chemicals of concern with safer substances based on hazards, performance and economic feasibility. The principles are general by design, . . . so they can be understood by different audiences, applied in a variety of business settings and agreed to by a broad group of signatories. . .

Pam Eliason, associate director of the Toxics Use Reduction Institute, . . . has seen companies reap the benefits of finding and using safer alternatives through requirements under Massachusetts's Toxics Use Reduction Act.

"We have a lot of experience with companies making the workplace safer and also saving money with reduced regulatory costs, reduced waste disposal issues and reduced exposure controls," Eliason said.

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View the [Commons Principles for Alternatives Assessment](#).

Smooth Running With Soybeans

[Source: Chemical and Engineering News, October 28, 2013](#)

Author: Melody M. Bomgardner

For most Americans, the phrase "oil spill" brings to mind the 2010 Deepwater Horizon disaster, which dumped 4.2 million barrels of crude into the Gulf of Mexico. But consumers dump a similar amount of used motor oil into the environment every year in the U.S. In fact, improper disposal of waste engine oil is a major cause of contamination of waterways, according to the Environmental Protection Agency.

Once oil enters soil or water it takes months for organisms to break it down, and it can leave behind toxic chemicals and heavy metals. Other industrial lubricants used in farm equipment, marine vessels, and lumberyards also routinely end up in soil and water.

One way to make industrial lubricants more environmentally friendly is to produce them from nonpetroleum raw materials. Vegetable oils rich in oleic acid can form a major component of the base oils that make up 90% of a finished lubricant.

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Tire Inferno

[Source: Chemical and Engineering News, October 28, 2013](#)

Author: Stephen K. Ritter

It was a fire to remember. On Oct. 31, 1983, residents of the farming community of Mountain Falls, Va., awoke to a mushroom cloud of black smoke expanding into an otherwise cloudless sky. The 300-foot-wide plume rose 4,500 feet from the floor of their valley nestled between autumn-colored ridges of the Appalachian Mountains. Some wondered whether it was an early Halloween prank gone wrong, or whether the Russians had dropped the bomb.

It was Paul and Alma Rhinehart's tire pile. On fire.

Estimates are that the Rhinehart tire-recycling operation had handled as many as 25 million tires in the decade leading up to the fire. . . .

The Rhinehart tire fire ended up burning for nine months, in the process generating a plume of toxic smoke that spread across four states and a stream of thousands of gallons of crude oil from melting tires that was contained in the nick of time. The environmental disaster created by the tire fire took more than 20 years and nearly \$12 million to clean up.

Tire recycling was hindered by a volume problem 30 years ago, and that hasn't changed. According to the Rubber Manufacturers Association, one waste tire is generated per person per year in the U.S. – today that's about 315 million tires annually.

But some things have improved. The fire served as a call to action for states to come up with better plans to manage tire recycling. The experience battling the blaze has contributed to advances in environmental monitoring. Cleaning up the fire's toxic detritus also became one of the few success stories for the Environmental Protection Agency's Superfund program. But perhaps the fire's greatest legacy may be that it's sparking start-up companies to create new technologies for using rubber and other types of feedstock materials as renewable resources.

[Read more...](#)

Also read in *Chemosphere*, "[Hazardous organic chemicals in rubber recycled tire playgrounds and pavers.](#)"

Children's Health Collection 2013: Summary of Articles on Disease, Exposure, and Methods

[Source: *Environmental Health Perspectives*, October 2012 - September 2013](#)

Children's Health Collection 2013 comprises all relevant articles published in EHP from October 2012 through September 2013: peer-reviewed research articles, news articles, podcasts, Science Selections, and editorials. Abstracts are featured for each research article, and hyperlinks take readers directly to the full article online. . . . The Science Selections are noted just below the related research.

Under three main sections -- Disease Outcomes, Exposures, and Methodologies and Populations -- the collection includes all research that has appeared in the Children's Health section of each EHP issue as well as relevant reviews and commentaries, research that involves both adult and child cohorts, adult diseases with early origins, experimental models with direct application to children's health, and topics of general interest to children's health researchers and advocates. Some specific topics (e.g., Built Environment) have news articles but not research.

This year has seen a large increase in articles on a variety of heavy metals as well as pesticides and other compounds, indicating that problems involving these exposures are still very much with us. Throughout the topics, study populations are from Asia, Africa, Europe (large pan-European cohorts and others in single countries), Central and South America, arctic Canada, and various rural and urban areas within the United States. Longitudinal birth cohort studies will continue to produce valuable research; and collaboration among cohort studies can suggest ways to integrate measures and methodologies for detailed comparison.

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Multiple origins of pyrethroid insecticide resistance across the species complex of a nontarget aquatic crustacean, *Hyalella azteca*

[Source: *Proceedings of the National Academy of Sciences*, October 28, 2013](#)

Authors: Donald P. Weston, Helen C. Poynton, Gary A. Wellborn, Michael J. Lydy, Bonnie J. Blalock, Maria S. Sepulveda, and John K. Colbourne

Use of pesticides can have substantial nonlethal impacts on nontarget species, including driving evolutionary change, often with unknown consequences for species, ecosystems, and society. *Hyalella azteca*, a species complex of North American freshwater amphipods, is widely used for toxicity testing of water and sediment and has frequently shown toxicity due to pyrethroid pesticides. [The study's authors] demonstrate that 10 populations, 3 from laboratory cultures and 7 from California water bodies, differed by at least 550-fold in sensitivity to pyrethroids. The populations sorted into four phylogenetic groups consistent with species-level divergence. By sequencing the primary pyrethroid target site, the voltage-gated sodium channel, [the authors] show that point mutations and their spread in natural populations were responsible for differences in pyrethroid sensitivity. At least one population had both mutant and WT alleles, suggesting ongoing evolution of resistance. Although nonresistant *H. azteca* were susceptible to the typical neurotoxic effects of pyrethroids, gene expression analysis suggests the mode of action in resistant *H. azteca* was not neurotoxicity but was oxidative stress sustained only at considerably higher pyrethroid concentrations. The finding that a nontarget aquatic species has acquired resistance to pesticides used only on terrestrial pests is troubling evidence of the impact of chronic pesticide transport from land-based applications into aquatic systems. [The authors'] findings have far-reaching implications

for continued uncritical use of *H. azteca* as a principal species for monitoring and environmental policy decisions.

[Read more...](#)

Also read the general [press release](#) about this study.

Male birth defect is weakly linked to pesticide exposure, Stanford-led study finds

[Source: Stanford School of Medicine, October 28, 2013](#)

Author: Louis Bergeron

A study of several hundred chemicals used in commercial pesticides has found only weak evidence that any of them are associated with a common birth defect in male infants.

The study, led by epidemiologists at the Stanford University School of Medicine, analyzed thousands of birth records and commercial pesticide application records for eight counties in California's heavily agricultural Central Valley. The researchers aimed to determine whether children were at increased risk of hypospadias if their mothers had lived in relatively close proximity to where pesticides were used while pregnant. Hypospadias is a genital malformation in which the urethral opening is on the underside of the penis rather than on the tip.

In the most detailed study of the largest data sets done to date, 292 individual chemicals and 57 groups of structurally similar chemicals were analyzed. Of those, the study identified 15 that had possible associations with hypospadias. But the researchers say further studies need to be done.

[Read more...](#)

Also read article in *Pediatrics*, "[Hypospadias and Residential Proximity to Pesticide Applications.](#)"

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.

Greenlist Bulletin is compiled by:

Mary Butow
Research and Reference Specialist
Toxics Use Reduction Institute
University of Massachusetts Lowell
600 Suffolk St., Wannalancit Mills
Lowell MA 01854
978-934-4365
978-934-3050 (fax)
mary@turi.org