

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.



Green Chemistry Connection, An Online Community for Green Chemistry Practitioners, Launched Nationwide

[Source: Great Lakes Region Pollution Prevention Roundtable, February 25, 2015](#)

Author: Laura Barnes

The Northeast Waste Management Officials' Association (NEWMOA) announces the national launch of the "Green Chemistry Connection," an online community of green chemistry practitioners and an information clearinghouse now available at www.GreenChemConnect.org.

NEWMOA created the Green Chemistry Connection in order to facilitate the exchange of information, ideas, and expertise on one easy-to-access and use web platform. NEWMOA conducted a "soft-launch" of the website in 2014 in the northeast with more than 115 members. With the re-launch of the website for a national audience, NEWMOA hopes to expand the conversation on green chemistry and further enhance the quantity and quality of information available on the Network.

[Read more...](#)

Check out the January 2015, "[Green Chemistry Guide](#)" from the National Pollution Prevention Roundtable.

New products from bark to replace fossil compounds: Adhesives and insulating foams from softwood bark tannins

Source: [ScienceDaily for the Technical Research Centre of Finland \(VTT\), February 23, 2015](#)

In collaboration with its partners, VTT developed tannin extraction from softwood bark as part of an ERA-NET project. At least 130 kg of crude tannin powder can be produced from one tonne of dry wood bark, still leaving 87% of the original bark mass available for incineration. In Finland, tannin could replace, in particular, fossil-based phenols in adhesives used in the wood products industry.

Hundreds of tonnes of tannin is produced from wood materials and wood bark for the needs of leather, beverage and animal feed industry in South America and South Africa in particular. However, the supply of the main sources of tannin, acacia and quebracho trees, is not sufficient to satisfy the increasing industrial demand for tannin.

In industrial use, tannin could be used to replace fossil chemicals in adhesives and insulating foams. In Finland, softwood bark tannins would be well suited for adhesive production for the manufacturing of wood products at sawmills. It could also enhance the fire resistance of insulating foams.

[Read more...](#)

Also see "[Commercial production of tannins from radiata pine bark for wood adhesives](#)".

UNH Research: Flame Retardants Found to Cause Metabolic, Liver Problems

Source: [University of New Hampshire, February 16, 2015](#)

DURHAM, N.H. -- Chemicals used as synthetic flame retardants that are found in common household items such as couches, carpet padding, and electronics have been found to cause metabolic and liver problems that can lead to insulin resistance, which is a major cause of obesity, according to new research from the University of New Hampshire.

"Being obese or overweight increases one's risk of many diseases including Type 2 diabetes, high blood pressure, coronary heart disease, stroke, gall bladder disease, osteoarthritis, sleep apnea and certain cancers," said Gale Carey, professor of nutrition and the lead researcher. In 2003, overweight and obesity-related medical expenses were 9.1 percent of total U.S. medical expenses at about \$80 billion. New Hampshire's portion of this expense was \$302 million.

Carey and her team of researchers found that laboratory rats exposed to polybrominated diphenyl ethers, or PBDEs, experienced a disruption in their metabolism that resulted in the development of metabolic obesity and enlarged livers.

[Read more...](#)

Also see article from *Environmental Science & Technology*, "[After the PBDE phase-out: a broad suite of flame retardants in repeat house dust samples from California](#)".

New ozone-destroying gases on the rise

Source: [University of Leeds - Sustainable Environment News, February 16, 2015](#)

Scientists report that chemicals that are not controlled by a United Nations treaty designed to protect the Ozone Layer are contributing to ozone depletion.

In the new study, published today in *Nature Geoscience*, the scientists also report the atmospheric abundance of one of these 'very short-lived substances' (VSLs) is growing rapidly.

Study lead author Dr Ryan Hossaini, from the School of Earth and Environment at the University of Leeds, said: "VSLs can have both natural and industrial sources. Industrial production of VSLs is not controlled by the United Nations Montreal Protocol because historically these chemicals have contributed little to ozone depletion.

"But we have identified now that one of these chemicals is increasing rapidly and, if this increase is allowed to continue, it could offset some of the benefits to the Ozone Layer provided by the Montreal Protocol." ...

Study co-author Dr Stephen Montzka from the NOAA added: "The increases observed for dichloromethane are striking and unexpected; concentrations had been decreasing slowly in the late 1990s, but since then have increased by about a factor of two at sites throughout the globe."

[Read more...](#)

See study in *Nature Geoscience*, "[Efficiency of short-lived halogens at influencing climate through depletion of stratospheric ozone](#)".

Demystifying New EPA Rules for Recycling Selected Hazardous Wastes

[Source: *Environmental Leader*, February 19, 2015](#)

Author: Jon Elliott

The Resource Conservation and Recovery Act (RCRA) and its state counterparts provide requirements to govern hazardous wastes during every step of their management, from "cradle to grave." Although these rules are intended to improve management and provide incentives for recycling and other beneficial uses of hazardous wastes, many organizations find many of the rules unnecessarily onerous -- and therefore potentially counterproductive if they actually discourage beneficial activities. In addition, over time changes in technologies, commercial activities and regulatory priorities reveal gaps in existing rules. In January, the Environmental Protection Agency (EPA) revised its "Definition of Solid Waste" rules governing a number of potentially hazardous wastes that it instead considers to be "hazardous secondary materials," and the range of recycling and recovery activities eligible for special regulatory considerations. The revisions become effective on July 13, 2015.

[Read more...](#)

Chemical Substitutions Tussle

[Source: *Chemical & Engineering News*, February 16, 2015](#)

Author: Alex Scott

Environmental groups and some companies are complaining that Europe's system for phasing out hazardous chemicals isn't doing the job.

Substances of very high concern (SVHCs) can be used -- or authorized -- in certain applications under Europe's chemicals regulation, known as the Registration, Evaluation, Authorisation & Restriction of Chemicals, or REACH. But environmental groups and firms such as AkzoNobel and Ikea argue that these exceptions are too readily made and that more substitutions of SVHCs should be taking place.

For example, AkzoNobel phased out lead chromate in its industrial paints in 2011, but "we are surprised that the EU looks set to grant an authorization for the continued use of lead chromate in these paints for at least 12 more years under REACH," says Julian Hunter, AkzoNobel's senior manager for product stewardship and regulatory affairs.

[Read more...](#)

PC4HS to Begin Implementation at Springfield Public Schools

[Source: *Cleanlink News*, February 24, 2015](#)

Process Cleaning for Healthy Schools (PC4HS), a nonprofit organization with a mission of "schools helping schools," will begin implementing the PC4HS system, April 2015, at Springfield Public Schools (SPS), the 2nd largest district in New England, having 57 schools, 2,458 teachers and 4,800 employees, serving 25,764 students.

"We are eager to assist this large and diverse educational community with a proven program, standardized training, and repeatable results for better, healthier cleaning within budget," said Rex Morrison, founder and president of PC4HS.

[Read more...](#)

TURI's Note: Please see our webinar from Rex Morrison, "[Safer Alternatives for Janitorial Cleaning](#)".

Also pertaining to schools, "[Popular athletic field turf raises worries in North Jersey](#)".

Rapid Responses and Mechanism of Action for Low-Dose Bisphenol S on ex Vivo Rat Hearts and Isolated Myocytes: Evidence of Female-Specific Proarrhythmic Effects

Source: [Environmental Health Perspectives, February 26, 2015](#)

Authors: Xiaoqian Gao, Jianyong Ma, Yamei Chen, and Hong-Sheng Wang

Background: Bisphenol S (BPS) is increasingly [being] used as a substitute for BPA in some "bisphenol A (BPA)-free" consumer goods and in thermal papers. Wide human exposure to BPS has been reported; however, the biological and potential toxic effects of BPS are poorly understood. ...

Results: In female rat hearts, acute exposure to 10^{-9} M BPS increased heart rate and in the presence of catecholamine-induced stress condition, markedly increased the frequency of ventricular arrhythmia events. BPS increased the incidence of arrhythmogenic triggered activities in female ventricular myocytes, and altered myocyte Ca^{2+} handling, particularly spontaneous Ca^{2+} release from the sarcoplasmic reticulum. The dose responses of BPS' actions were inverted-U shaped. The impact of BPS on myocyte Ca^{2+} handling was mediated by estrogen receptor β signaling and rapid increases in the phosphorylation of key Ca^{2+} handling proteins including ryanodine receptor and phospholamban. The pro-arrhythmic effects of BPS were female-specific; male rat hearts were not affected by BPS at the organ, myocyte and protein levels.

Conclusion: Rapid exposure to low-dose BPS has pro-arrhythmic impact on female rat hearts; these effects at the organ, cellular and molecular levels are remarkably similar to those reported for BPA. Evaluation of the bioactivity and safety of BPS and other BPA analogs is necessary before they are used as BPA alternatives in consumer products.

[Read more...](#)

Also see article on the study in *National Geographic*, "[Chemical in BPA-Free Products Linked to Irregular Heartbeats](#)".

HSI applauds EU Commission regulation sparing possibly millions of animals from reproductive toxicity tests but underlines 'unnecessary delay'

Source: [EU Reporter, February 24, 2015](#)

Humane Society International welcomes the publication of Commission Regulation (EU) 2015/282 of 20 February 2015 amending REACH testing requirements to replace the out-dated two-generation rat reproduction test with an extended one-generation study (EOGRTS) design, modernizing a critical regulatory data requirement while also sparing potentially millions of animals from being bred and killed.

However, it is unacceptable that it has taken nearly three years for the REACH data requirement to finally be amended, and future amendments must be implemented swiftly and decisively to further modernise REACH requirements and spare even more animals unnecessary pain and suffering. HSI first proposed the EOGRTS change back in April 2012 as part of a comprehensive package of REACH revisions.

[Read more...](#)

Also see the OECD Guidelines for the Testing of Chemicals, "[Test No. 443: Extended One-Generation Reproductive Toxicity Study](#)".

See article in *Toxicologic Pathology*, "[Regulatory Forum opinion piece: New Testing paradigms for reproductive and developmental toxicity -- the NTP modified one generation study and OECD 443](#)".

Man-Made Pollutants Finding Their Way Into Groundwater Through Septic Systems

Source: [Pollution Online, February 10, 2015](#)


Pharmaceuticals, hormones and personal care products associated with everyday household activities are finding their way into groundwater through septic systems in New York and New England, according to the U.S. Geological Survey.

"Septic systems nationwide are receiving increased attention as environmental sources of chemical contamination," said USGS scientist Patrick Phillips, lead author of the study published in the journal *Science of the Total Environment*.

Two different well networks were studied, one in New England and the other in New York, looking for micropollutants in groundwater samples collected downgradient of septic systems. "Downgradient" is the term used for how groundwater flows under the ground, and is a similar term to "downstream" when describing surface water. The scientists tested for items such as pharmaceuticals, personal care products, and plasticizer compounds (which make things more flexible).

[Read more...](#)

Also see the MassDEP emerging contaminants page on [Pharmaceuticals & Personal Care Products](#).



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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