

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.



Novel and High Volume Use Flame Retardants in US Couches Reflective of the 2005 PentaBDE Phase Out

[Source: *Environmental Science and Technology*, November 28, 2012](#)

Authors: Heather M. Stapleton, Smriti Sharma, Gordon Getzinger, P. Lee Ferguson, Michelle Gabriel, Thomas F. Webster, and Arlene Blum

California's furniture flammability standard Technical Bulletin 117 (TB 117) is believed to be a major driver of chemical flame retardant (FR) use in residential furniture in the United States. With the phase-out of the polybrominated diphenyl ether (PBDE) FR mixture PentaBDE in 2005, alternative FRs are increasingly being used to meet TB 117; however, it was unclear which chemicals were being used and how frequently. To address this data gap, we collected and analyzed 102 samples of polyurethane foam from residential couches purchased in the United States from 1985 to 2010. Overall, we detected chemical flame retardants in 85% of the couches. In samples purchased prior to 2005 (n = 41) PBDEs associated with the PentaBDE mixture including BDEs 47, 99, and 100 (PentaBDE) were the most common FR detected (39%), followed by tris(1,3-dichloroisopropyl) phosphate (TDCPP; 24%), which is a suspected human carcinogen. . . .

We determined that the presence of a TB 117 label did predict the presence of a FR; however, lack of a label did not predict the absence of a flame retardant. Following the PentaBDE phase out, we also found an increased number of flame retardants on the market. Given these results, and the potential for human exposure to FRs, health studies should be conducted on the types of FRs identified here.

[Read more...](#)

Read another article from *Environmental Science and Technology*, ["After the PBDE Phase-Out: A Broad Suite of](#)

[Flame Retardants in Repeat House Dust Samples from California.](#)

Incorporating Green Chemistry Concepts into Mobile Chemistry Applications and Their Potential Uses

[Source: ACS Sustainable Chemistry & Engineering, November 29, 2012](#)

Authors: Sean Ekins, Alex Michael Clark, and Antony John Williams

Green Chemistry related information is generally proprietary and papers on the topic are commonly behind pay walls which limits their accessibility. Several new mobile applications (Apps) have been recently released for the Apple iOS platform, which incorporate green chemistry concepts. Due to the large number of people who now own a mobile device across all demographics, this population represents a highly novel way to communicate green chemistry, which has not previously been appreciated. We have made the American Chemical Society Green Chemistry Institute® (ACS GCI) Pharmaceutical Roundtable Solvent Selection Guide more accessible, and increased its visibility by creating a free mobile app for the Apple iOS platform called Green Solvents.

[Read more...](#)

Chemical "Soup" Clouds Connection between Toxins and Poor Health

[Source: Scientific American, November 23, 2012](#)

Author: Brendan Borrell

From plastics to flame retardants, the ubiquitous chemicals of our daily lives have raised public health concerns like never before. Inside the Beltway, however, data-crunching scientists are often no match for industry lobbyists and corporate lawyers. The exception, no doubt, is Linda Birnbaum, the toxicologist who leads, two little-known scientific agencies, the National Institute of Environmental Health Services (NIEHS) and the National Toxicology Program (NTP). . . .

After 33 years working as a federal scientist at both the U.S. Environmental Protection Agency and the NIEHS, Birnbaum's career is a study in the way science becomes law and the ways lobbyists subvert science. She has watched her contributions to an EPA report on dioxin sit in limbo for 20 years, she has worked to study the health impacts of types of asbestos that are not legally recognized as asbestos and she has challenged the chemical industry in her pursuit for answers about the controversial chemical bisphenol A (BPA).

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China Generates List of Substitutes to Toxic and Hazardous Substances

[Source: CHEMLINKED, November 16, 2012](#)

Author: Fang Lin

On November 13, 2012, China's Ministry of Industry and Information Technology (MIIT) started collecting public comments for the "Catalogue of Encouraged Substitutes to Toxic and Hazardous Raw Materials (2012)."

Early this year, the MIIT collected information from the provincial authorities to establish a national policy to substitute existing hazardous substances. A wide range of materials, including heavy metals, POPs and PTS, the hyper toxics, corrosives, irritatives, and radioactives (nuclear facilities and military facilities are exempt), which are listed in the "List of Dangerous Goods (GB 12268)," the "list of hazardous chemicals," the "list of highly toxic chemicals" and the "National Hazardous Waste Inventory," are classified as toxic and hazardous materials in the catalogue. Those materials are therefore within the scope of the movement and encouraged to be replaced.

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Rigid polyurethane foams from cardanol: Synthesis, structural characterization and evaluation of the polyol and foam properties

[Source: ACS Sustainable Chemistry & Engineering, November 27, 2012](#)

Author: Kattimuttathu I. Suresh

Global efforts to find renewable feedstocks for the chemical industry are aimed at replacing fossil reserves and a reduction in global warming by employing environment friendly technologies (green chemistry approaches) for specialty chemical manufacturing. Cardanol, obtained as a by-product of the cashew processing industry, is an important renewable resource and is a unique phenolic compound carrying a 15-carbon side chain in meta position with varying degrees of unsaturation. In this work, the synthesis of new biobased polyols for rigid polyurethane (PU) foams through oxidation of side chain unsaturation is reported using the environmentally benign reagent hydrogen peroxide.

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TURI's Note: Also, read the *Journal of Cleaner Production* article on cardanol as an innovative bio-feedstock, "[A renewable waste material for the synthesis of a novel non-halogenated flame retardant polymer.](#)"

Researchers identify a simple way to precipitate phosphorus from the wastewater of a pulp mill

[Source: Aalto University, November 21, 2012](#)

Researchers at Aalto University have developed a simple method for reducing the amount of phosphorus in the wastewater of a pulp mill. The method is called simultaneous precipitation using iron sulphate. A separate treatment stage is not required, as the precipitation takes place simultaneously with the actual biological wastewater treatment.

Iron sulphate is added to the wastewater prior to the biological wastewater treatment process, and the phosphorus dissolved into the water is precipitated with the biomass at the treatment plant. Finally, the phosphorus is removed from the plant with the sludge. In Finland, sludge is generally burned, in which case the phosphorus would end up in the ashes and would thus be reusable in the form of fertilizers, for example.

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Ingredient disclosure drives reformulation

[Source: IHS Chemical Week, November 19, 2012](#)

Ingredient disclosure initiatives, including the California Safe Cosmetics Act of 2005, are helping drive reformulation in the market for personal care and cosmetics chemicals. The Safe Cosmetics Act created a public database of toxic chemicals that links specific chemicals with specific types of toxicity, including known carcinogens and contributors to reproductive or developmental disorders.

Please contact TURI for the full article.



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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