

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.

Dear Greenlist Subscribers,
Starting with the next issue, November 30th, we will be transitioning to delivering Greenlist on Monday mornings so that you can start your week off with the latest in chemical health and safety news.

Thank you for your continued readership and support. Hope you have a wonderful Thanksgiving!
Mary

Assessing and Reducing the Toxicity of 3D-Printed Parts

Source: [Environmental Science and Technology Letters, November 4, 2015](#)

Authors: Shirin Mesbah Oskui, Graciela Diamante, Chunyang Liao, Wei Shi, Jay Gan, Daniel Schlenk, and William H. Grover

3D printing is gaining popularity by providing a tool for fast, cost-effective, and highly customizable fabrication. However, little is known about the toxicity of 3D-printed objects. In this work, we

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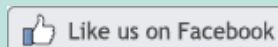
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assess the toxicity of printed parts from two main classes of commercial 3D printers, fused deposition modeling and stereolithography. We assessed the toxicity of these 3D-printed parts using zebrafish (*Danio rerio*), a widely used model organism in aquatic toxicology. Zebrafish embryos were exposed to 3D-printed parts and monitored for rates of survival, hatching, and developmental abnormalities. We found that parts from both types of printers were measurably toxic to zebrafish embryos, with STL-printed parts significantly more toxic than FDM-printed parts. We also developed a simple post-printing treatment (exposure to ultraviolet light) that largely mitigates the toxicity of the STL-printed parts. Our results call attention to the need for strategies for the safe disposal of 3D-printed parts and printer waste materials.

[Read more...](#)

The rise of the non-toxic buyer: 6 case studies on safer chemistry

Source: [GreenBiz, November 12, 2015](#)

Author: Amy Perlmutter

Public and private sector green purchasing programs first began in the 1990s, and they've been growing in number and scope ever since.

Environmentally preferable purchasing (EPP) programs initially focused on recycled content and energy efficiency. Now, they are increasingly taking into account the issue of toxicity, nudging buyers toward the purchase of products with less toxic chemistries.

As a result, supply chains are shifting towards safer, more sustainable products, and transparency is increasing. Greater numbers and categories of products are available that are less harmful to people and the planet.

[Read more...](#)

Also see from *Chemical Watch*, "[Business Guide to Safer Chemicals in the Supply Chain](#)".

'Green burials' are cheaper, less toxic, and gaining ground in Vermont

Source: [Boston.com, November 7, 2015](#)

Author: Amanda Hoover

"Green" burial grounds are becoming an appealing option for some Vermont residents.

A new Vermont state law has lessened some of the regulations for public cemeteries and now permits natural burial grounds, a cheaper alternative to traditional interment. Green burials forego toxic fluids and caskets as well as pesticides and fertilizers used to maintain pristine lawns at traditional cemeteries, the *Burlington Free Press* reported.

These burial sites would lack fencing and tombstones, and could instead use a GPS to identify the grave's location. The less intrusive nature of such cemeteries would allow wildlife to thrive and open the area for other outdoor activities, the *Free Press* reported.

[Read more...](#)

Report Exposes Failures of Fragrance Industry's Self-Regulated Safety Policies

Source: [Women's Voices For The Earth, November 5, 2015](#)

An exclusive report by national women's health non-profit, Women's Voices for the Earth (WVE), is a first of its kind ... on the failings of the fragrance industry's self-regulated safety program.

The term "fragrance" actually represents a chemical cocktail that can be made up of hundreds of ingredients. Fragrances are found in thousands of consumer products, yet there is little regulatory oversight of the safety of those ingredients. The current system for fragrance safety is run entirely by the industry's own International Fragrance Association (IFRA) and their research arm, the Research Institute for Fragrance Materials (RIFM).

"The safety of fragrance chemicals is not determined, monitored or safe-guarded by any governmental agency globally in any comprehensive fashion," said Alexandra Scranton, Director of Science and Research at WVE and author of the report. "Allowing the fragrance industry to self-regulate, and establish itself as the sole authority on fragrance safety, simply does not serve the public health interest."

[Read more...](#)

Access the full report, "[Unpacking the Fragrance Industry: Policy Failures, the Trade Secret Myth and Public Health](#)". Also see the [Fragrance Chemicals of Concern Present on the International Fragrance Association \(IFRA\) Transparency List 2015](#).

See from [CityLab](#), "[The Fight to Rid Black Women's Hair Salons of Toxic Chemicals](#)".

TCO Certified New Generation

Source: [TCO Development, November 11, 2015](#)

The new generation of TCO Certified is now open for brands to certify their products and for purchasers to choose products that help them further reduce environmental and social risks commonly connected to IT hardware.

The new generation -- the seventh since the sustainability certification began in 1992 -- takes further steps in reducing the hazardous content of IT products and raises brand engagement in supply chain social responsibility.

TCO Certified now includes criteria for testing of non-halogenated flame retardant substances and replacing the most hazardous with safer alternatives, using GreenScreen™ for Safer Chemicals, developed by US-based non-profit Clean Production Action.

[Read more...](#)

Also see [press release from Clean Production Action, "GreenScreen® in International Electronics Sustainability Standard"](#).

EDC-2: The Endocrine Society's Second Scientific Statement on Endocrine-Disrupting Chemicals

Source: *Endocrine Reviews*, November 6, 2015

Authors: A. C. Gore, V. A. Chappell, S. E. Fenton, J. A. Flaws, A. Nadal, G. S. Prins, J. Toppari, and R. T. Zoeller

The Endocrine Society's first Scientific Statement in 2009 provided a wake-up call to the scientific community about how environmental endocrine-disrupting chemicals (EDCs) affect health and disease. Five years later, a substantially larger body of literature has solidified our understanding of plausible mechanisms underlying EDC actions and how exposures in animals and humans -- especially during development -- may lay the foundations for disease later in life. At this point in history, we have much stronger knowledge about how EDCs alter gene-environment interactions via physiological, cellular, molecular, and epigenetic changes, thereby producing effects in exposed individuals as well as their descendants. Causal links between exposure and manifestation of disease are substantiated by experimental animal models and are consistent with correlative epidemiological data in humans. There are several caveats because differences in how experimental animal work is conducted can lead to difficulties in drawing broad conclusions, and we must continue to be cautious about inferring causality in humans. In this second Scientific Statement, we reviewed the literature on a subset of topics for which the translational evidence is strongest: 1) obesity and diabetes; 2) female reproduction; 3) male reproduction; 4) hormone-sensitive cancers in females; 5) prostate; 6) thyroid; and 7) neurodevelopment and neuroendocrine systems. Our inclusion criteria for studies were those conducted predominantly in the past 5 years deemed to be of high quality based on appropriate negative and positive control groups or populations, adequate sample size and experimental design, and mammalian animal studies with exposure levels in a range that was relevant to humans. We also focused on studies using the developmental origins of health and disease model. No report was excluded based on a positive or negative effect of the EDC exposure. The bulk of the results across the board strengthen the evidence for endocrine health-related actions of EDCs. Based on this much more complete understanding of the endocrine principles by which EDCs act, including nonmonotonic dose-responses, low-dose effects, and developmental vulnerability, these findings can be much better translated to human health. Armed with this information, researchers, physicians, and other healthcare providers can guide regulators and policymakers as they make responsible decisions.

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Germ-killing bathroom sprays appear to weaken fertility

Source: *Environmental Health News*, November 12, 2015

Author: Brian Bienkowski

Common ingredients in the cleaning sprays for your kitchen and bathroom make mice less fertile, suggesting the compounds could do the same to humans, according to a new study.

Health researchers are concerned about specific chemicals used in cleaners -- including popular brands like Lysol, Clorox and Simple Green -- called quaternary ammonium compounds, used to kill microorganisms. Recent laboratory work from Virginia Tech University scientists found that when mice are exposed, both males and females have some unsettling impacts, such as weaker sperm and decreased ovulation.

Industry representatives have pushed back on the research, saying federal agencies deem the chemicals safe and that mice were exposed to unrealistically high levels.

The study, published today in *Reproductive Toxicology*, comes as U.S. infertility rates appear to be rising. A growing body of evidence suggests that environmental chemicals are playing a role.

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See study in *Reproductive Toxicology*, "[Quaternary Ammonium Disinfectants Cause Subfertility in Mice by Targeting both Male and Female Reproductive Processes](#)".

After 25 Years of Pollution Prevention, Wash. State Working Toward Greener Chemicals

[Source: KPLU 88.5, October 20, 2015](#)

Author: Bellamy Pailthorp

It has been 25 years since the federal government passed the Pollution Prevention Act. The 1990 law is credited with reducing industrial waste by as much as 60 percent since it was enacted, by getting companies and governments to look upstream at what goes into the manufacturing process and stopping pollution at the source.

But the effectiveness of that approach appears to have limits. With many toxic chemicals remaining, especially in consumer products, additional strategies are needed. And that's where states come in.

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