Greenlist BULLETIN

TURI TOXICS USE REDUCTION INSTITUTE UMASS LOWELL

Toxics Use Reduction Institute May 2, 2016

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.

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This Toxic Pollutant Infecting Water Supplies Is Raising Concerns

Source: *TIME*, April 28, 2016
Author: Justin Worland

Concern over the toxic chemical commonly known as PFOA has spread to communities across the country where locals worry that water polluted with the chemical may be harming their health.

"Known scope of contamination has gone from a regional problem to a national public health crisis that continues to widen, with no apparent end in sight," leaders of the Environmental Working Group, a nonprofit environmental research organization, wrote in a letter to the Environmental Protection Agency (EPA) earlier this week.

New Hampshire, Alabama, Vermont and New York are among the states where the issue has received attention in recent weeks.

Read more...

A simple way to track your everyday exposure to chemicals

Source: *Chemical & Engineering News*, April 18, 2016
Author: Britt E. Erickson

For one week, 92 preschool-aged children in Oregon sported colorful silicone wristbands provided by researchers from Oregon State University. The children's parents then returned the bands, which the researchers analyzed to determine whether the

youngsters had been exposed to flame retardants. The scientists were surprised to find that the kids were exposed to many polybrominated diphenyl ethers (PBDEs), chemicals that are no longer produced in the U.S., as well as to organophosphate flame retardants, which are widely used as substitutes for PBDEs.

The results from that wristband study ... remain qualitative -- they tell parents whether their child has been exposed to a particular chemical but don't provide information regarding the amount of exposure. The researchers, led by environmental chemist Kim Anderson, are now working on ways to extract quantitative exposure data from the bands.

Read more...

Also see original article on research in *Environmental Research*, "Using silicone wristbands to evaluate preschool children's exposure to flame retardants".

UNSW takes out CZTS efficiency world record

Source: *PV Magazine*, April 27, 2016
Author: Jonathan Gifford

Researchers at the University of New South Wales (UNSW) have achieved a world record conversion efficiency of 7.6% for a 1cm2 copper zinc tin sulfide (CZTS) solar cell. Japan's Solar Frontier, with IBM and Tokyo Ohka Kogyo, have previously achieved 12.6%, however on a smaller 0.42cm2 substrate.

Read more...

MBA Polymers Producing Plastics from E-Waste

Source: *Environmental Leader*, April 27, 2016
Author: Jessica Lyons Hardcastle

Plastics recycling and technology company MBA Polymers has started what it says it the first commercial production line in the world manufacturing post-consumer PC/ABS pellets from shredded e-waste.

PC/ABS -- a blend of polycarbonate (PC) with acrylonitrile-butadiene-styrene copolymer (ABS) -- is used in a huge range of electronic products such as computer monitors, cellular phones and laptop computers, as well as automotive applications.

Read more...

Also see in *Environmental Leader*, "GreenCentre, Maratek Environmental Team Up on Solvent Recycling Technology".

Walmart reduces chemicals of high concern by 95%

Source: *Chemical Watch*, April 27, 2016
Author: Kelly Franklin

Walmart has announced a 95% by weight reduction of "high priority chemicals" from certain products sold in US locations, according to its latest global responsibility report.

The company's policy on sustainable chemistry in consumables, launched in 2013, seeks to remove substances of high concern from goods such as personal care, paper, cleaning, pet, and baby products.

It committed to begin publicly communicating its progress from January this year.

Absent from its announcement, however, is the list of the "ten or so" high priority chemicals that have been addressed. Kevin Gardner, senior director of Walmart's global responsibility communications, told *Chemical Watch* that the company plans to release the list "in the coming months".

The Environmental Defense Fund (EDF) -- an NGO that worked with Walmart on its sustainability goals -- called the announcement a "promising step in the right direction". But it added that "it is difficult to fully appreciate Walmart's accomplishments, without knowing the names of these chemical targets."

Read more...

Also see from *Chemical Watch*, "Chemicals become most reported product risk".

Evaluating the Combined Toxicity of Cu and ZnO Nanoparticles: Utility of the Concept of Additivity and a Nested Experimental Design

Source: *Environmental Science & Technology*, April 12, 2016

Authors: Yang Liu, Jan Baas, Willie J. G. M. Peijnenburg, and Martina G. Vijver

Little is understood regarding the effects of mixtures of different metal-based nanoparticles (NPs). Using concentration-addition (CA) and independent-action (IA) models, we evaluated the combined toxicity of Cu and ZnO NPs based on five nested combinations, i.e., $Cu(NO_3)_2$-CuNPs, $Zn(NO_3)_2$-ZnONPs, $Cu(NO_3)_2$-ZnONPs, $Zn(NO_3)_2$-CuNPs, and CuNPs-ZnONPs on root elongation of Lactuca sativa L. The CA and IA models performed equally well in estimating the toxicity of mixtures of $Cu(NO_3)_2$-CuNPs, $Zn(NO_3)_2$-ZnONPs, and $Zn(NO_3)_2$-CuNPs, whereas the IA model was significantly better for fitting the data of $Cu(NO_3)_2$-ZnONPs and CuNPs-ZnONPs mixtures. Dissolved Cu proved to be the most toxic metal species to lettuce roots in the tests, followed by Cu NPs, dissolved Zn, and ZnO NPs, respectively. An antagonistic effect was observed for ZnO NPs on the toxicity of Cu NPs. This antagonistic effect is expected to be the result of interactions between dissolved Cu and dissolved Zn, particulate Zn and dissolved Zn, particulate Cu and dissolved Zn, and between particulate Zn and dissolved Cu. In general terms, assuming additivity gives a first indication of the combined toxicity with soluble and insoluble metal particles, both being important in driving the toxicity of metal-based NPs to higher plants.

Read more...

Building a Safety Program to Protect the Nanotechnology Workforce: A Guide for Small to Medium-Sized Enterprises

Source: National Institute for Occupational Safety and Health, March 2016

The National Institute for Occupational Safety and Health (NIOSH) is pleased to present Building a Safety Program to Protect the Nanotechnology Workforce: A Guide for Small to Medium-Sized Enterprises. Responsible development of nanotechnologies includes considering and managing the potential, unintended consequences to human health and the environment that might accompany development and use of the technology. This guide will demonstrate that the key to ensuring the safety of your business, particularly when resources are limited, is to prevent occupational exposures and incidents before they happen.

Read more...

Access NIOSH publication number 2016-102, "Building a Safety Program to Protect the Nanotechnology Workforce".

Also see from SafeNano, "In the know...on health surveillance of workers in the nanotechnology sector".

Two of the world's top three insecticides harm bumblebees - study

Source: *The Guardian*, April 28, 2016
Author: Damian Carrington

Two of the world's most widely used insecticides cause significant harm to bumblebee colonies, a new study has found, but a third had no effect.

The work shows the distinct effects of each type of neonicotinoid pesticide, from cuts in live bees and eggs to changed sex ratios and numbers of queens. Previously, the different types of neonicotinoids have often been treated as interchangeable.

Neonicotinoids and other pesticides have been implicated in the worldwide decline in pollinators, which are vital for many food crops, although disease and loss of habitat are also important factors. There is strong evidence that neonicotinoids harm individual bees but little evidence so far that colonies suffer as a result. The EU imposed a moratorium on the use of neonicotinoids on flowering crops in 2013.

The new study examined the effect of three neonicotinoids from the level of brain cells to colonies in the field. The latter involved 75 colonies across five sites in Scotland and included control colonies that were not given access to the pesticides.

Read more...

See article in *Scientific Reports*, "Neonicotinoids target distinct nicotinic acetylcholine receptors and neurons, leading to differential risks to bumblebees".

See the Massachusetts Department of Agriculture draft Massachusetts Pollinator Protection Plan and an article in the *Boston Globe*, "Mass. beekeepers abuzz at the sting of proposed state plan".

Also see in the *Hartford Courant*, "Bee Protection Bill Passes Senate".

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