Greenlist BULLETIN

TURI TOXICS USE REDUCTION INSTITUTE UMASS LOWELL

Toxics Use Reduction Institute June 29, 2018

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.

Handwashing and House Cleaning May Protect Against Unhealthy Chemicals

Source: Columbia University - Mailman School of Public Health, June 26, 2018

Washing your hands and cleaning your house frequently may help to lower your contact with common flame-retardant chemicals, according to a new study by researchers at the Columbia Center for Children's Environmental Health (CCCEH) at Columbia University's Mailman School of Public Health. The study is the first to assess whether house cleaning and handwashing can effectively lower exposure to flame retardants. Results appear in the *Journal of Exposure Science and Environmental Epidemiology*.

Flame retardant chemicals have been added to furniture and electronics since the 1970s to comply with fire safety standards. Manufacturers use of new organophosphate flame retardants (OPFRs) to consumer products has increased since 2005. OPFRs have been linked to endocrine disruption, decreased fertility, and thyroid disruption in humans. In this study, researchers examined exposure to a commonly used OPFR, Tris (1,3-dichloroisopropyl) phosphate, known as Tris, and six other flame retardants.

Read more...

See article in the *Journal of Exposure Science & Environmental Epidemiology*, "Flame retardant exposure assessment: findings from a behavioral intervention study".

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Mixed "Antiandrogenic" Chemicals at Low Individual Doses Produce Reproductive Tract Malformations in the Male Rat

Source: *Toxicological Sciences*, July 1, 2018

Authors: Justin M. Conley, Christy S. Lambright, Nicola Evans, Mary Cardon, Johnathan Furr, Vickie S. Wilson, Leon Earl Gray, Jr.

Biomonitoring efforts have clearly shown that all humans are exposed to chemical mixtures. Of concern is whether or not exposure to mixtures during pregnancy contributes to congenital abnormalities in children even when each chemical is at an individual dose that does not affect the fetus. Here, we hypothesized that in utero exposure to a mixture of chemicals covering multiple "antiandrogenic" mechanisms of action at doses that individually have no adverse effect would result in permanent reproductive tract alterations in the male rat after birth. Pregnant dams were exposed to a range of dilutions (100%, 50%, 25%, 12.5%, 6.25%, or vehicle control) of a mixture containing pesticides, phthalates, and drugs (p, p'-DDE, linuron, prochloraz, procymidone, pyrifluquinazon, vinclozolin, finasteride, flutamide, simvastatin, and 9 phthalates [dipentyl, dicyclohexyl, di-2-ethylhexyl, dibutyl, benzyl butyl, diisobutyl, diisoheptyl, dihexyl, and diheptyl]). The top dose contained each chemical at 20% of its lowest observed adverse effect level (LOAEL) for the most sensitive male reproductive alteration following in utero exposure. We found that male rat offspring displayed a variety of neonatal, pubertal, and permanent adult effects across all dose levels. Even at the lowest dose (each chemical approximately 80-fold below lowest observed adverse effect level) there were permanent reductions in several reproductive tract tissue weights. In the top dose group, 100% of male offspring displayed permanent severe birth defects including genital malformations. Despite acting via 5 different molecular initiating events, a mixture of 18 chemicals can combine to produce additive effects even when each compound is at is at a relatively low dose.

Read more...

Sound management of chemicals and their waste is vital for sustainable development

Source: United Nations Development Programme, June 25, 2018

Authors: Xiaofang Zhou and Ajiniyaz Reimov

Chemicals are a part of our modern society, and each day we use various chemical-based products to make our lives more comfortable and productive. However, without good management practices, chemicals and the hazardous waste they generate can pose significant risks to human health and the environment.

Some chemicals like Persistent Organic Pollutants (POPs) and mercury will have long-term negative impacts on the environment and human health. Unfortunately, exposure to such chemicals increases cancer rates, can lead to reproductive and development disorders, and immune system illnesses.

The World Health Organization has estimated that 1.3 million lives and 43 million disability-adjusted life-years were lost in 2012 due to exposure to selected chemicals. The poorest members of the global community are particularly vulnerable to the effects of toxic pollution. For example, 54 percent of the global burden of disease due to the chemicals is borne by children under the age of 15, and as much as 33 percent of the chemical body burden can be passed from a mother to a child.

Global chemicals production is growing fast, and most of the production is shifting to developing countries. While this leads to higher economic development, we must ensure that there are safeguards against the possibility of associated toxicity. The sound management of chemicals and waste is an important component of UNDP's efforts to achieve sustainable, inclusive and resilient human development and the Sustainable Development Goals (SDGs).

Read more...

OECD to coordinate work on economic impacts of chemicals

Source: *Chemical Watch*, June 28, 2018
Author: Emma Chynoweth

An OECD project is set to take a lead role in coordinating international efforts to monetise the costs and benefits of chemicals regulation across the globe.

The organisation aims to fill the gap that exists in the monetary values that can be used to calculate the economic impacts of taking measures to manage risks associated with different hazard endpoints.

Read more...

TURI's Note: See our report, "Toxics Use Reduction and Resource Conservation: Competitiveness Impacts for Massachusetts Businesses".

80 Years Later, Cosmetics Chemicals Still Unregulated

Source: Environmental Working Group, June 25, 2018
Author: Scott Faber

It's been 80 years since Congress last voted to regulate cosmetics.

And a lot has changed since June 25, 1938 -- the day Congress passed the Food, Drug and Cosmetics Act of 1938. These days cosmetics are a $60 billion-a-year business, and the average woman uses 12 products with 168 different ingredients every day.

The 1938 law only prohibited the sale of cosmetics with any "poisonous or deleterious substance," or any "filthy, putrid, or decomposed substance," so the Food and Drug Administration has so far only banned nine cosmetics ingredients for safety reasons. Members of Congress made other efforts to modernize cosmetics law, starting in the 1950s, but all of these attempts were defeated by the cosmetics industry.

Read more...

See the Personal Care Products Safety Act fact sheet from EWG.

Also see from *Chemical Watch*, "Commission publishes amendments to EU cosmetics Regulation".

Predicting Indoor Emissions of Cyclic Volatile Methylsiloxanes from the Use of Personal Care Products by University Students

Source: *Environmental Science & Technology*, June 8, 2018
Authors: Tao Yang, Jianyin Xiong, Xiaochen Tang, and Pawel K. Misztal

Characterization of indoor emissions of cyclic volatile methylsiloxanes (cVMS) due to the use of personal care products is important for elucidating indoor air composition and associated health risks. This manuscript describes a mass transfer model to characterize the emission behaviors of decamethylcyclopentasiloxane (D5; the most abundant indoor cVMS) from skin lipids. A C-history method is introduced to determine the key parameters in the model, i.e., the initial concentration and diffusion coefficient of D5 inside the skin lipids. Experiments were conducted in a university classroom to examine the D5 emission behaviors by using a proton-transfer-reaction time-of-flight mass spectrometer (PTR-TOF-MS). ... With the model, we found that the reuse of personal care products has a significant impact on the D5 emissions. In addition, the time-dependent emission rate and remaining

amount of D5 inside the skin can also be calculated.

Read more...

Greenlist Bulletin is compiled by:
Mary Butow
Research and Reference Specialist
Toxics Use Reduction Institute
University of Massachusetts Lowell
126 John Street, Suite 14, Second Floor
Lowell, MA 01852
978-934-4365
978-934-3050 (fax)
mary@turi.org