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.

NIOSH Announces Release of Updated Nanotechnology Research Strategic Plan

Source: Centers for Disease Control and Prevention, December 20, 2013

The National Institute for Occupational Safety and Health (NIOSH) today issued "Protecting the Nanotechnology Workforce: NIOSH Nanotechnology Research and Guidance Strategic Plan, 2013-2016," http://www.cdc.gov/niosh/docs/2014-106/.

This plan updates the November 2009 NIOSH strategic plan with knowledge gained from results of ongoing research, as described in the 2012 report, "Filling the Knowledge Gaps for Safe Nanotechnology in the Workplace: A Progress Report from the NIOSH Nanotechnology Research Center, 2004-2011," http://www.cdc.gov/niosh/docs/2013-101/.

Today, nanomaterials are found in hundreds of products, ranging from cosmetics, to clothing, to industrial and biomedical applications. The potential benefits of nanotechnology are huge, and these benefits should be realized by society. However, there is ongoing concern that the full potential of the societal benefits may not be realized if research efforts are not undertaken to determine how to best manage and control the potential occupational safety and health hazards associated with the handling of these nanomaterials.

This NIOSH Nanotechnology Research and Guidance Strategic Plan is the roadmap being used to advance basic understanding of the toxicology and workplace exposures involved so that appropriate risk management practices can be implemented during discovery, development, and commercialization of engineered nanomaterials. NIOSH will strive to remain at the forefront of developing guidance that supports and promotes the safe and responsible development of such a promising technology.

Read more...

Also note that NIOSH is evaluating its carcinogen and related Recommended Exposure Limit policies and is accepting public

comments until February 13. See "NIOSH Evaluation of its Cancer and REL Policies."

US Labor Department seeks public comment on agency standards to improve chemical safety

Source: U.S. Department of Labor, Occupational Safety & Health Administration, December 3, 2013

WASHINGTON -- The U.S. Department of Labor's Occupational Safety and Health Administration today announced a request for information seeking public comment on potential revisions to its Process Safety Management standard and related standards, as well as other policy options to prevent major chemical incidents.

The RFI is in response to executive order 13650, which seeks to improve chemical facility safety and security, issued in the wake of the April 2013 West, Texas tragedy that killed 15 in an ammonium nitrate explosion.

In addition to comments on its Process Safety Management standard, OSHA seeks input on potential updates to its Explosives and Blasting Agents, Flammable Liquids and Spray Finishing standards, as well as potential changes to PSM enforcement policies. The agency also asks for information and data on specific rulemaking and policy options, and the workplace hazards they address. OSHA will use the information received in response to this RFI to determine what actions, if any, it may take.

Read more...

Global Report Finds High Levels of Lead in Paint

Source: IPEN, October 2013

A new 2013 report from IPEN and UNEP documents high levels of lead in paint in nine countries. IPEN Participating Organizations in Argentina, Azerbaijan, Chile, Ethiopia, Ghana, Ivory Coast, Kyrgyzstan, Tunisia, and Uruguay collected paint samples for total lead content testing. With the exception of ten samples from the Ivory Coast, all of the paints purchased and tested were enamel decorative paints. . . .

The release of this report coincided with the International Lead Poisoning Prevention week of action, 20 - 26 October.

Read more...

Also read IPEN's related report, "Eliminate Lead Paint: Protect Children's Health."

See also, from the *Los Angeles Times*, "Firms to pay $1.1-billion in long-running lead paint lawsuit."

Daphnia magna May Serve As a Powerful Tool in Screening Endocrine Disruption Chemicals (EDCs)

Source: *Environmental Science & Technology*, December 26, 2013
Authors: Yuan Kang, Xiaomin Yan, Laisheng Li, Qiuyun Zhang, Lixuan Zeng, and Jiwen Luo

Daphnia magna has been widely applied in aquatic toxicity including acute and chronic toxicity test. However, its asexual and sexual reproduction in life cycle is usually ignored. Under favorable environmental condition, *Daphnia magna* shows asexual reproduction only producing female offspring. The environmental stressor could stimulate the *Daphnia magna* to produce male or gynandromorphism offspring. Male and female offspring can be determined by the presence of two elongated first antennae two rudimentary first antennae, respectively, at 10× magnification.

Endocrine disruption chemicals (EDCs) such as vinclozolin and dicofol, as an environmental stressor, are also observed to be able to alter the sex ratio of *Daphnia magna* offspring. Most EDCs are identified to interfere with the hormone and reproductive system of vertebrates. Why could the EDCs disrupt the reproductive system of both vertebrates and invertebrates, which seems to be extremely different? Recently, two *Doublesex* (Dsx) genes are identified to control the sex determination of *Daphnia magna*. *DapmaDsx1* is responsible for the development of male characteristic. The DSX protein show deep conservation when compared to other invertebrate and vertebrate species via NCBI blast (Table 1). On the other hand, methyl farnesoate signaling

pathway mediating the male reproduction and sexual differentiation in *Daphnia magna* is found to be associated with protein kinase and phosphotase, which is consistent with that observed in rat. Taken together, it indicates that there are analogies in the sexual development between vertebrates and invertebrates such as *Daphnia magna*. The *Daphnia magna* may respond to the EDCs to produce abnormal sex ratio of offspring, and the female and male offspring can be easily discriminated under microscope, which could make it serve as a powerful tool to screen the unknown EDCs in future.

Read more...

Relationships of Polychlorinated Biphenyls and Dichlorodiphenyldichloroethylene (*p,p'*-DDE) with Testosterone Levels in Adolescent Males

Source: *Environmental Health Perspectives*, December 20, 2013
Authors: Lawrence M. Schell, Mia V. Gallo, Glenn D. Deane, Kyrie R. Nelder, Anthony P. DeCaprio, Agnes Jacobs, and the Akwesasne Task Force on the Environment

Background: Concern persists over endocrine disrupting effects of persistent organic pollutants (POPs) on human growth and sexual maturation. Potential effects of toxicant exposures on testosterone levels during puberty are not well characterized.

Objectives: This study evaluates the relationship between toxicants (polychlorinated biphenyls (PCBs), dichlorodiphenyldichloroethylene (*p,p'*-DDE), hexachlorobenzene (HCB), and lead (Pb), and testosterone levels among 127 Akwesasne Mohawk males 10 to < 17 years of age with documented toxicant exposures.

Methods: Data were collected between February 1996 and January 2000. Fasting blood specimens were collected before breakfast by trained Akwesasne Mohawk staff. Multivariable regression models were used to estimate associations between toxicants and serum testosterone, adjusted for other toxicants, Tanner stage, and potential confounders.

Results: The sum of 16 PCB congeners (Σ16PCBs) that were detected in ≥ 50% of the population was significantly and negatively associated with serum testosterone levels, such that a 10% change in exposure was associated with a 5.6% decrease in testosterone (95% CI: -10.8, -0.5%). Of the 16 congeners, the more persistent ones (Σ8PerPCBs) were related to testosterone while the less persistent ones, possibly reflecting more recent exposure, were not. When PCB congeners were sub-grouped, the association was significant for the sum of 8 more persistent PCBs (5.7% decrease; 95% CI: -11, -0.4%), and stronger than the sum of 6 less persistent congeners (3.1% decrease; 95% CI: -7.2, 0.9%). *p,p'*-DDE was positively, but not significantly, associated with serum testosterone (5.2% increase with a 10% increase in exposure; 95% CI: -0.5, 10.9%). Neither Pb nor HCB was significantly associated with testosterone levels.

Conclusions: Exposure to PCBs, particularly the more highly persistent congeners, may negatively influence testosterone levels among adolescent males. The positive relationship between *p,p'*-DDE and testosterone indicates that not all POPs act similarly.

Read more...

Also read the press release from *Environmental Health News*, "High PCBs linked to lower testosterone in Mohawk boys."

Dermal Uptake of Organic Vapors Commonly Found in Indoor Air

Source: *Environmental Science & Technology*, December 12, 2013
Authors: Charles J. Weschler and William W Nazaroff

Transdermal uptake directly from air is a potentially important yet largely overlooked pathway for human exposure to organic vapors indoors. [The authors] recently reported (*Indoor Air* 2012, 22, 356) that transdermal uptake directly from air could be comparable to or larger than intake via inhalation for many semivolatile organic compounds (SVOCs). Here, [the authors] extend that analysis to approximately eighty organic compounds that (a) occur commonly indoors and (b) are primarily in the gas-phase rather than being associated with particles. For some compounds, the modeled ratio of dermal-to-inhalation uptake is large. In this group are common parabens, lower molecular weight phthalates, o-phenylphenol, Texanol, ethylene glycol, and α-terpineol. For other compounds, estimated dermal uptakes are small compared to inhalation. Examples include aliphatic hydrocarbons, single ring aromatics, terpenes, chlorinated solvents, formaldehyde, and acrolein. Analysis of published experimental data for human subjects for twenty different organic compounds substantiates these model predictions. However, transdermal uptake rates from air have

not been measured for the indoor organics that have the largest modeled ratios of dermal-to-inhalation uptake; for such compounds, the estimates reported here require experimental verification. In accounting for total exposure to indoor organic pollutants and in assessing potential health consequences of such exposures, it is important to consider direct transdermal absorption from air.

Read more...

Reducing, Reusing, & Recycling Waste Latex Paint in Rural Communities

Source: Northeast Waste Management Officials' Association, July 2013

Many communities struggle with how to help residents properly manage and reduce disposal of the significant amounts of leftover latex paint they generate. This fact sheet is designed to help local government officials in rural communities better understand options available for reducing, reusing, and recycling this paint.

Read more (PDF)...

Keep it clean and green for Christmas

Source: *The Chronicle* (Goshen/Chester, NY), December 20, 2013

'Tis the season to be in the kitchen, whether you're hosting an event, heading for a potluck or cooking a traditional meal for your family. Whatever the reason, you're probably going to buy ingredients, cook, clean -- and enjoy some leftovers.

The Environmental Working Group recommends that you prepare your holiday feasts with your family's environmental health in mind. Choose food low in pollutants and added chemicals, avoid toxic chemicals in cookware, store and reheat leftovers safely, clean greener, . . .

Read more...

Also see the 2013 Non-Toxic Shopping Guide (PDF) from Women's Voices for the Earth, which includes tips and resources for finding safer products and top non-toxic gift picks from eco-friendly, conscientious women of the WVE community who are experts in their fields.

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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