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.

The Burden of Cancer from Organic Chemicals

Source: David O. Carpenter, Ed., Effects of Persistent and Bioactive Organic Pollutants on Human Health, 2013 (Ch.3)
Chapter Authors: Molly M. Jacobs, Rachel I. Massey, and Richard W. Clapp

Background: The majority of the industrial chemicals and drugs that have been identified as carcinogens by the International Agency for Research on Cancer are organic chemicals. Exposures to these organic chemicals occur in the workplace; in the outdoor and indoor environments; through air, water and food; and through products.

Objectives: This chapter reviews the paths of exposure through which organic chemicals contribute to the global burden of cancer; summarizes the links between individual organic chemicals and specific cancer sites; examines selected individual chemicals, including both well-known carcinogens and emerging chemicals of concern; and provides a brief discussion of the methodological and conceptual difficulties associated with the effort to define the percentage of cancers attributable to occupational and environmental exposures.

Discussion: This review highlights a number of areas of concern, including rising rates of certain cancers, including children's cancers; and ongoing exposure to organic chemical carcinogens in the workplace, in the ambient environment, and through products and food. Individual chemicals highlighted as case studies include 2, 4-D, benzene, styrene, trichloroethylene (TCE), 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD), bisphenol A (BPA), and n-propyl bromide (nPB).

Conclusions: Taking into account all the factors reviewed here, it is clear that reducing human exposure to organic chemical carcinogens in the workplace, the home, and the ambient environment is a key component of a comprehensive cancer prevention strategy.

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Residential Proximity to Methyl Bromide Use and Birth Outcomes in an Agricultural Population in California

Source: *Environmental Health Perspectives*, April 19, 2013
Authors: Alison Gemmill, Robert B. Gunier, Asa Bradman, Brenda Eskenazi, Kim G. Harley

Background: Methyl bromide, a fungicide often used in strawberry cultivation, is of concern for residents who live near agricultural applications because of its toxicity and potential for drift. Little is known about the effects of methyl bromide exposure during pregnancy.

Objective: We investigated the relationship between residential proximity to methyl bromide use and birth outcomes. . . .

Results: High methyl bromide use (vs. no use) within 5 km of the home during the second trimester was negatively associated with birth weight (β = -113.1 g; CI: -218.1, -8.1), birth length (β = -0.85 cm; CI: -1.44, -0.27), and head circumference (β = -0.33 cm; CI: -0.67, 0.01). These outcomes were also associated with moderate methyl bromide use during the second trimester. Negative associations with fetal growth parameters were stronger when larger (5 km and 8 km) versus smaller (1 km and 3 km) buffer zones were used to estimate exposure.

Conclusions: Residential proximity to methyl bromide use during the second trimester was associated with markers of restricted fetal growth in our study.

Read more...

Nearly 100 Building Projects Test the Next Version of LEED

Source: U.S. Green Building Council, May 30, 2013

Washington, D.C. -- The U.S. Green Building Council (USGBC) announced today that nearly 100 building projects across the globe are already using LEED v4, the next version of the LEED green building program, by participating in the LEED v4 beta. The beta project teams are helping USGBC validate and improve LEED v4 implementation and testing support resources such as reference guide content and LEED Online forms. USGBC's goal is to fine-tune the LEED user experience during this beta period, before LEED v4 launches this fall, based on suggestions and input from the beta project teams.

LEED v4 builds on the fundamentals of the past while offering a new system that prepares all LEED projects in a portfolio to perform at a higher level. LEED v4 also provides a new suite of time-saving support tools designed to help streamline the certification process.

Read more...

Read more about LEED v4 here.

Also read from GreenBiz.com, "LEED brings Cradle to Cradle into green building certification."

TURI's Note: Keep an eye out for our special issue on green building this month!

Bio-Inspired Design May Lead to More Energy Efficient Windows

Source: University of Toronto, August 2, 2013

University of Toronto Engineering professor Ben Hatton (MSE) is turning to nature to find a way to make windows more energy efficient.

In a recent article in *Solar Energy Materials & Solar Cells*, Hatton and colleagues at Harvard University describe a novel process to cut down on heat loss during the winter and keep buildings cool during the summer. Their "bio-inspired approach to thermal control for cooling (or heating) building window surfaces" calls for attaching optically clear, flexible elastomer sheets, bonded to regular glass window panes.

The elastomer sheets, made from polydimethylsiloxane (PDMS) have channels running through them through which room temperature water flows. The technique has resulted in 7 to 9 degrees of cooling in laboratory experiments and is effective both at small and large scales, Hatton and his colleagues said.

"Our results show that an artificial vascular network within a transparent layer, composed of channels on the micrometer to millimeter scale, and extending over the surface of a window, offers an additional and novel cooling mechanism for building windows and a new thermal control tool for building design," he said.

Read more...

Read article in *Solar Energy Materials & Solar Cells*, "An artificial vasculature for adaptive thermal control of windows."

The Chemical Safety Board Contemplates Reprimanding OSHA on Lack of Action

Source: EHSToday.com, July 15, 2013
Author: Sandy Smith

The U.S. Chemical Safety Board (CSB) will hold a public meeting on July 25 in Washington to consider whether OSHA adequately has implemented seven regulatory recommendations issued by the CSB, as well as to consider the selection of the agency's first "Most Wanted Chemical Safety Improvement." This action would mark the first time the agency's board members have selected special advocacy initiatives related to chemical safety. . . .

During the afternoon session, the board will consider designating four recommendations it made to OSHA calling for a comprehensive general industry standard for combustible dust as "Open-Unacceptable Response." These recommendations resulted from CSB's investigations of the 2008 explosions and fire at the Imperial Sugar Refinery in Port Wentworth, Ga., and three dust-related incidents at the Hoeganaes Corp. in Gallatin, Tenn.

Read more...

Also read a Statement from Chairperson Rafael Moure-Eraso on Executive Order Improving Chemical Facility Safety and Security.

2013 Additives Reference Guide

Source: *Paint & Coatings Industry*, June 1, 2013
Authors: Dr. Darlene Brezinski, Dr. Joseph V. Koleske, and Robert Springate

Additives belong to a broad and diffuse category of key components in a coating formulation. They comprise a small percentage of the coating formulation -- their use level rarely exceeds 1 or 2%, and the total level of all additives in a formulation seldom exceeds 5% of the total product. Their impact, however, is significant as they contribute to the ease of manufacture, the stability of the coating in the package, ease of application, quality and appearance of the final film. . . .

The focus on green technology, sustainability, nanotechnology, lower cost and safer products has led to the introduction of newer additives and chemistries. The industry demands that green additives perform the same or better than their traditional counterparts and that they combine performance, sustainability and efficiency along with lower cost. With a larger number of additives available for a particular problem, formulators can find themselves in trouble if the wrong additive is initially selected or added to alleviate or correct a problem. Correct additive selection is important to success, and such selection is made through vendor assistance or years of experience.

Read more...

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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