

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.

Green office environments linked with higher cognitive function scores

[Source: Harvard T. H. Chan School of Public Health, October 26, 2015](#)

Boston, MA -- People who work in well-ventilated offices with below-average levels of indoor pollutants and carbon dioxide (CO₂) have significantly higher cognitive functioning scores -- in crucial areas such as responding to a crisis or developing strategy -- than those who work in offices with typical levels, according to a new study from the Harvard T.H. Chan School of Public Health's Center for Health and the Global Environment, SUNY Upstate Medical University, and Syracuse University.

The researchers looked at people's experiences in "green" vs. "non-green" buildings in a double-blind study, in which both the participants and the analysts were blinded to test conditions to avoid biased results. The findings suggest that the indoor environments in which many people work daily could be adversely affecting cognitive function -- and that, conversely, improved air quality could greatly increase the cognitive function performance of workers.

[Read more...](#)

See original study in *Environmental Health Perspectives*, "[Associations of Cognitive Function Scores with Carbon Dioxide, Ventilation, and](#)

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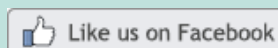
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Volatile Organic Compound Exposures in Office Workers: A Controlled Exposure Study of Green and Conventional Office Environments".

Also see from *Environmental Health and Preventive Medicine*, "Comparison of subjective symptoms associated with exposure to low levels of formaldehyde between students enrolled and not enrolled in a gross anatomy course".

What's poppin' in Denmark? Popcorn with safer packaging

Source: *Environmental Health News*, October 29, 2015

Author: Brian Bienkowski

If you were looking to toss some popcorn in your microwave in Denmark this past summer, the popular movie snack wasn't easy to find.

That's because the country's largest retailer months earlier yanked microwave popcorn off its more than 1,200 stores because suppliers couldn't come up with a way to rid the packaging of fluorinated chemicals. The chemicals are not regulated in Denmark but are linked to certain cancers, hormone disruption, organ problems and lower birth weights, and found in the linings of popcorn bags.

Manufacturers use fluorinated compounds in popcorn bags so the paper in the bag doesn't quickly degrade after contacting the butter in the popcorn and, unlike previously used solutions such as wax, the chemicals can withstand microwave heat.

"There was just no solution in the world in popcorn," said Malene Teller Blume, department manager of chemistry and nonfood at Coop Denmark.

But then something happened: innovation. Just last week, Coop Denmark unveiled fluorinated-free microwave popcorn, made by Spanish snack company Liven.

The supplier came up with stronger paper for the bag, relied on the natural cellulose, which, after being boiled for a longer time, became impermeable to the fat, so the bag didn't need to be coated with the fluorinated chemicals.

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Duke-EWG Study Finds Toxic Nail Polish Chemical In Women's Bodies

Source: *Environmental Working Group*, October 19, 2015

Author: Sara Sciammacco

WASHINGTON -- Researchers at Duke University and Environmental Working Group have found evidence of a suspected endocrine-disrupting chemical widely used in popular nail polishes in the bodies of more than two-dozen women who participated in a biomonitoring study.

The study, published today in *Environment International*, found that all women had a metabolite of triphenyl phosphate, or TPHP, in their bodies just 10 to 14 hours after painting their nails. Their levels of diphenyl phosphate or DPHP, which forms when the body metabolizes TPHP, had increased by nearly sevenfold.

"It is very troubling that nail polish being marketed to women and teenage girls contains a suspected endocrine disruptor," said Johanna Congleton, Ph.D., MSPH, a senior

scientist at EWG and co-author of the Duke-EWG study. "It is even more troubling to learn that their bodies absorb this chemical relatively quickly after they apply a coat of polish."

[Read more...](#)

Access original study in *Environment International*, "[Nail polish as a source of exposure to triphenyl phosphate](#)".

Welcome to the GC3 Safer Chemistry Training for Businesses

[Source: Green Chemistry & Commerce Council, October 2015](#)

Representatives from GC3 member companies have expressed an urgent need for education of their employees and supply chains in various aspects of green chemistry. In response, the GC3 Education Group organized a series of webinars with expert speakers and developed this into an online introductory green chemistry curriculum. This curriculum could constitute a two-day in-person training. The training is comprised of webinars, ranging from introductory talks to more advanced lessons in specific tools and applications of green chemistry, as well as supplemental reading materials to expand upon the presentations. The result is a free training resource that we hope will provide a useful foundation for any business audience, such as purchasers trying to understand new corporate sustainability initiatives, technical assistance providers, formulators who need a grounding in toxicology, or even students seeking careers in green chemistry.

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Analysis of Environmental Chemical Mixtures and Non-Hodgkin Lymphoma Risk in the NCI-SEER NHL Study

[Source: Environmental Health Perspectives, October 2015](#)

[Authors: Jenna Czarnota, Chris Gennings, Joanne S. Colt, Anneclaire J. De Roos, James R. Cerhan, Richard K. Severson, Patricia Hartge, Mary H. Ward, and David C. Wheeler](#)

Background: There are several suspected environmental risk factors for non-Hodgkin lymphoma (NHL). The associations between NHL and environmental chemical exposures have typically been evaluated for individual chemicals (i.e., one-by-one).

Objectives: We determined the association between a mixture of 27 correlated chemicals measured in house dust and NHL risk. ...

Results: The WQS index was statistically significantly associated with NHL overall [odds ratio (OR) = 1.30; 95% CI: 1.08, 1.56; p = 0.006; for one quartile increase] and in the study sites of Detroit (OR = 1.71; 95% CI: 1.02, 2.92; p = 0.045), Los Angeles (OR = 1.44; 95% CI: 1.00, 2.08; p = 0.049), and Iowa (OR = 1.76; 95% CI: 1.23, 2.53; p = 0.002). The index was marginally statistically significant in Seattle (OR = 1.39; 95% CI: 0.97, 1.99; p = 0.071). The most highly weighted chemicals for predicting risk overall were PCB congener 180 and propoxur. Highly weighted chemicals varied by study site; PCBs were more highly weighted in Detroit, and pesticides were more highly weighted in Iowa.

Conclusions: An index of chemical mixtures was significantly associated with NHL. Our results show the importance of evaluating chemical mixtures when studying cancer risk.

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How to Use GreenScreen® for LEED v4

[Source: Clean Production Action, October 21, 2015](#)

(Boston, MA) --- A new report released today by Clean Production Action offers guidance for using their GreenScreen® for Safer Chemicals method to meet the LEED v4 requirements.

GreenScreen® helps manufacturers, architects and designers in identifying chemicals of concern and selecting safer alternatives. Using GreenScreen® enables building professionals to meet green building requirements and choose safer materials and products.

"The latest version of LEED building certification, along with increasing public concern for environmental health, emphasizes identifying chemicals in building products and using safer alternatives to those that are toxic," said Mark Rossi, Ph.D., Executive Director of Clean Production Action. "GreenScreen® is helping to clarify the world of chemicals in building products where disclosure is largely absent and knowledge of hazardous and safer chemicals is unknown."

The newly-released "How to Use GreenScreen® for LEED v4" provides an overview on LEED requirements and defines terms that are critical for meeting them. "The 'How to' guide is the outcome of a unique collaboration of manufacturers and users to provide clear guidance for meeting LEED requirements," said Annie Bevan, Certification and Operations Manager at Green Circle Certified, LLC.

[Read more...](#)

Access full report, "[How to Use GreenScreen® for LEED v4](#)".

Also see from Healthy Building Network, "[Recycling in the Age of Product Transparency](#)".

After Activist Pressure, Macy's Vows to Ensure Furniture is Free of Toxic Flame Retardants

[Source: Bloomberg Business, October 20, 2015](#)

Authors: Christie Boyden and Lindsey Rupp

Macy's Inc., responding to a campaign from health and environmental activists, will check with its furniture suppliers to ensure that they aren't using toxic flame retardants in their products.

While Macy's expects that few manufacturers are still using the substances at issue, the retailer will explicitly instruct suppliers to stop using certain chemicals, Jim Sluzewski, a spokesman, said in an e-mailed statement Tuesday.

"We at Macy's are firmly committed to protecting the health and safety of our customers, as well as to complying with all laws, including those that pertain to protecting safety," Sluzewski said. "Macy's has been an industry leader in environmental sustainability, and we are proud of our track record in that regard."

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Anthropogenic Carbon Nanotubes Found in the Airways of Parisian Children

[Source: EBioMedicine, October 9, 2015](#)

Authors: Jelena Kolosnjaj-Tabi, Jocelyne Just, Keith B. Hartman, Yacine Laoudi, Sabah Boudjemaa, Damien Alloyeau, Henri Szwarc, Lon J. Wilson, Fathi Moussa

Compelling evidence shows that fine particulate matters (PMs) from air pollution penetrate lower airways and are associated with adverse health effects even within concentrations below those recommended by the WHO. A paper reported a dose-dependent link between carbon content in alveolar macrophages (assessed only by optical microscopy) and the decline in lung function. However, to the best of our knowledge, PM had never been accurately characterized inside human lung cells and the most responsible components of the particulate mix are still unknown. On another hand carbon nanotubes (CNTs) from natural and anthropogenic sources might be an important component of PM in both indoor and outdoor air.

We used high-resolution transmission electron microscopy and energy dispersive X-ray spectroscopy to characterize PM present in broncho-alveolar lavage-fluids (n = 64) and inside lung cells (n = 5 patients) of asthmatic children. We show that inhaled PM mostly consist of CNTs. These CNTs are present in all examined samples and they are similar to those we found in dusts and vehicle exhausts collected in Paris, as well as to those previously characterized in ambient air in the USA, in spider webs in India, and in ice core. These results strongly suggest that humans are routinely exposed to CNTs.

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NIOSH: Rates of Occupational Pesticide-related Illness, Injury Likely Underestimated

[Source: American Industrial Hygiene Association, October 28, 2015](#)

A NIOSH report on illnesses and injuries from occupational exposure to conventional pesticides notes that the published counts and rates, which cover the years 2007-2010, are likely to be underestimates. According to NIOSH, the estimates are low because many workers with pesticide-related illness or injury do not seek medical care or contact the appropriate authorities. Workers who do seek medical care may receive an inaccurate diagnosis because some healthcare professionals are not familiar with the recognition and management of pesticide-related illnesses. NIOSH notes that inaccurate estimates of pesticide illness and injury among agricultural workers may further affect the data due to the transient employment of seasonal and migrant farmworkers, many of whom are difficult to count.

NIOSH found that the rates of pesticide-related illness and injury among agricultural industry workers were 37 times greater than those for nonagricultural workers but cautions that these statistics must be considered minimum estimates. Most of the 2,014 cases of acute occupational pesticide-related illness and injury in 2007-2010 involved exposure to insecticides or herbicides. Pyrethroids, organophosphates, and pyrethrins were the chemical classes most often involved among those exposed to insecticides; specific herbicides most commonly involved with occupational exposures were glyphosate and the dipyridyls.

[Read more...](#)

See NIOSH report, "[Acute Occupational Pesticide-Related Illness and Injury - United States, 2007-2010](#)".

Also see additional information on the [Sentinel Event Notification System for Occupational Risk \(SENSOR\) - Pesticides Program](#).

Finding the Right Blend

[Source: Controlled Environments, September 25, 2015](#)

[Authors: Barbara Kanegsberg and Ed Kanegsberg](#)

In most mixtures, the components can be readily separated. If you mix water and table salt (sodium chloride) and then expose the water to air the water eventually evaporates, leaving the salt behind. However, if you distill whiskey, there is a limit to the purification. Even after repeated distillation, the limit is approximately 96 percent ethyl alcohol; the rest is water. Distillation to higher purity is not possible under typical distillation conditions. ...

Blended chemistries, both aqueous and solvent-based and whether or not they are relatively separable, are ubiquitous in critical cleaning applications, and with good reason. Blended chemistries can provide the desired cleaning performance. Blended chemistries may expand the solvency range. This may make it easier to remove adherent soils or complex soil mixtures. Blending an aggressive chemical with a milder chemical can lessen materials compatibility issues. Components and parts with tight spacing are often difficult to clean because the cleaning agent cannot readily access the soil. Surfactants make water less "water-like" by reducing its surface tension. This allows the cleaning solution to flow into small gaps and holes. Adding solvents with relatively high density, low viscosity, and low surface tension can allow the mixture to more readily access the soil to be removed. In some instances, the blend may show a desirable chemical reaction with the soil of interest. Non-additive or synergistic effects may happen in blends, so that cleaning is even better than might be expected based on the individual properties of the chemicals.

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