

Greenlist Bulletin

From the Toxics Use Reduction Institute
at the University of Massachusetts Lowell

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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.



Take Care in the Kitchen: Avoiding Cooking-Related Pollutants

[Source: Environmental Health Perspectives, June 2014](#)

Author: Nate Seltnerich

Carbon monoxide (CO), nitrogen dioxide (NO₂), and particulate matter (PM) are harmful air pollutants that pose significant short- and long-term health risks. Emitted from coal-fired power plants, vehicle exhaust pipes, and other combustion sources, they're among six primary pollutants monitored by the U.S. Environmental Protection Agency (EPA) through the Clean Air Act. These same pollutants are also some of the most common contributors to unhealthy air inside U.S. homes, due in part to a ubiquitous and possibly surprising activity: cooking.

Researchers now understand that the process of cooking food and even simply operating stoves -- particularly gas appliances -- can emit a cocktail of potentially hazardous chemicals and compounds. Within our homes, these pollutants are less diluted than they are outdoors, and in the absence of proper ventilation, they often are trapped inside. The World Health Organization has established general guidelines for indoor air quality and is currently developing specific limits related to burning solid fuels for cooking and heating. However, indoor air in nonindustrial buildings is not regulated by the EPA or any other U.S. agency.

[Read more...](#)

Also see information on an upcoming webinar from the U.S. EPA and NIEHS Children's Center: [Is Our Food Safe from Chemical Exposures?](#)

Preventing work cancers. A workplace health priority

[Source: European Trade Union Institute, 2014](#)

Author: Marie-Anne Menegeot, Tony Musu and Laurent Vogel

Cancers are the main cause of death by poor working conditions in Europe, but have received scant regard from Community policies of the past decade. The political context is against effective prevention of long-term factors that do not put a direct cost on business. This brochure shows how

the fight against work cancers can be won if trade unions and public authorities adopt coherent strategies. It takes a solid look at the history and causes of work-induced cancers and provides tools for collective prevention. It is aimed at trade unionists, scientists, public health practitioners and policy-makers.

[Read more...](#)

Also from ETUI, "[Nanomaterials and workplace health & safety. What are the issues for workers?](#)"

Outdoor Formaldehyde and NO₂ Exposures and Markers of Genotoxicity in Children Living Near Chipboard Industries

[Source: *Environmental Health Perspectives*, June 2014](#)

Authors: Alessandro Marcon, Maria Enrica Fracasso, Pierpaolo Marchetti, Denise Doria, Paolo Girardi, Linda Guarda, Giancarlo Pesce, Vanda Pironi, Paolo Ricci, and Roberto de Marco

Background: Industrial air pollution is a public health hazard. Previous evidence documented increased respiratory symptoms and hospitalizations in children who live near the factories in the largest chipboard manufacturing district in Italy (Viadana).

Objectives: We evaluated the association of outdoor exposure to formaldehyde and nitrogen dioxide (NO₂) with markers of early genotoxic damage in oral mucosa cells of randomly selected children (6-12 years of age) living in Viadana. ...

Conclusions: Exposure to pollutants was associated with markers of genotoxicity in exfoliated buccal cells of children living in a region with chipboard industries. These findings, combined with previously reported associations between chipboard industrial activities and respiratory outcomes in children, add to concerns about potential adverse effects of industry-related exposures in the Viadana district.

[Read more...](#)

Kaiser Stops Buying Furniture with Flame Retardants

[Source: *Environmental Leader*, June 4, 2014](#)

Kaiser Permanente says it will stop purchasing furniture treated with flame retardants, making it the first healthcare system in the US to remove these toxic chemicals from hospital furniture.

The decision could impact more than 38 hospitals and 600 medical offices in eight states and the District of Columbia, the company says.

Kaiser's new furniture standard specifies that upholstered furniture in new or remodeled buildings should not contain added fire retardant chemicals.

The decision follows a move by California, which updated its flammability standard for upholstered furniture. The new rules say that furniture manufacturers can meet standards without the use of fire retardant chemicals, which studies show offer no significant benefit in the fire safety performance of furniture. Companies must comply with the new rules by Jan. 1, 2015.

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Cleaning the Air with Roof Tiles

[Source: *University of California, Riverside*, June 4, 2014](#)

Author: Sean Nealon

RIVERSIDE, Calif. -- A team of University of California, Riverside's Bourns College of Engineering students created a roof tile coating that when applied to an average-sized residential roof breaks down the same amount of smog-causing nitrogen oxides per year as a car driven 11,000 miles.

They calculated 21 tons of nitrogen oxides would be eliminated daily if tiles on one million roofs were coated with their titanium dioxide mixture. They also calculated it would cost only about \$5 for enough titanium dioxide to coat an average-sized residential roof.

That would have a significant impact in Southern California, where 500 tons of nitrogen oxides are

emitted daily in the South Coast Air Quality Management District coverage area, which includes all of Orange County and the urban portions of Los Angeles, Riverside and San Bernardino counties.

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Precarious Promise: A Case Study of Engineered Carbon Nanotubes

[Source: Lowell Center for Sustainable Production, March 2014](#)

Authors: Molly M. Jacobs, Michael Ellenbecker, Polly Hoppin, David Kriebel and Joel Tickner

In 1991, a researcher with the NEC Corporation identified what is now heralded as one of the most important discoveries of the 20th century: carbon nanotubes (CNTs). One hundred thousand times smaller than a human hair, these cylinders of carbon can be over 100 times stronger than steel and six times lighter. CNTs are able to withstand repeated bending and twisting, are an excellent conductor of electricity, and can transport heat better than any other known material. With such extraordinary chemical and physical properties, many believe that CNTs have sparked the next industrial revolution.

In just over two decades since the discovery of carbon nanotubes, technologies relying on engineered CNTs have developed at warp speed. Current and anticipated uses of engineered CNTs are numerous and diverse: sporting equipment, solar cells, wind turbines, disk drives, batteries, antifouling paints for boats, flame retardants, life-saving medical devices, drug delivery technologies, and many more. Some have suggested that every feature of life as we know it is or will be impacted by the discovery and use of CNTs.

Despite uncertainty about how these entirely new materials may affect living systems, CNTs have largely been a case of "forget precaution, get to production." Concern for human health and the environment has been overwhelmed by the promise of profits and progress. Financial support for nanomaterial research and commercial development has vastly outpaced funding of environmental health and safety and sustainable design research on these materials. And with limited understanding of how these structures – small enough to penetrate cells – will interact with humans and other life forms, use of CNTs is proliferating with few systems in place to protect people or the environment.

Warning signs have emerged, however. CNTs share important physical characteristics with ultrafine air pollution particles as well as with asbestos fibers - both recognized as seriously toxic. Mounting numbers of toxicological studies now demonstrate irreversible health effects in laboratory animals, but it is unclear whether similar effects have occurred in humans exposed at work or through environmental releases.

[Read more...](#)

Access the case study [here](#).

See slides from the Lowell Center for Sustainable Production's webinar, "[Alternatives Assessment for Engineered Nanoparticles](#)".

Also see "[IARC Advisory Group recommends multi-walled carbon nanotubes as high priority for assessment](#)".

Phthalate-free Plasticizers in PVC

[Source: Healthy Building Network, 2014](#)

Author: Sarah Lott

This Healthy Building Network (HBN) Research Brief examines replacements for phthalate plasticizers in Polyvinyl Chloride (PVC) building materials. Plasticizers are added to PVC to make it flexible, but since they are not tightly bound to the PVC molecules, they migrate from PVC products. Phthalates, the most commonly used plasticizers in PVC, are known endocrine disruptors - chemicals that interfere with hormone signaling, which is especially critical to early childhood development. Additionally, many phthalates are known carcinogens and reproductive and developmental toxicants. Exposures to these toxic plasticizers from PVC products can occur throughout their lifecycle. Therefore, it is crucial that PVC products containing phthalate plasticizers be eliminated from the built environment.

[Read more...](#)

Also see from HBN, "[More Vinyl Greenwash](#)".

Three Steps To Make Green Globes Part of the Solution

Source: [Environmental Building News, June 1, 2014](#)

Authors: Tristan Roberts and Paula Melton

TurboTax gets audited. Now, so does Green Globes.

The green building rating system run by the Green Building Initiative (GBI), would-be rival to the U.S. Green Building Council (USGBC) and its LEED rating system, has been likened to the popular income tax software because it takes a complex problem and breaks it down into a user-friendly online questionnaire.

And just as someone needs to check that TurboTax actually reflects the U.S. tax code, we at BuildingGreen felt that it was time to take a deep look at Green Globes to see how well it reflects the needs and values of the green building community.

[Read more...](#)

Also see from *Today's Facility Manager*, "[Drexel University Releases Green Globes Vs. LEED Cost Comparison Study](#)".

Progress in the use of alternatives to animal testing

Source: [European Chemicals Agency, June 2, 2014](#)

Helsinki, 2 June 2014 – ECHA's second report to the European Commission on the use of alternative methods under REACH shows an increase in the use of these methods. The report's analysis is based on over 38 000 registration dossiers submitted for the 2010 and 2013 registration deadlines.

According to the report, most registrants do conform with the data sharing obligation under REACH to fulfil the information requirements and to avoid unnecessary animal testing. Registrants also built categories and predicted substance properties using read-across approaches in up to 75 % of analysed dossiers for at least one endpoint. Read-across or category approach has been particularly used for higher-tier endpoints where alternative, non-animal test methods are not yet available.

In addition, registrants started to take up in vitro methods for skin and eye irritation, using cells, tissues or organs. The total number of in vitro studies submitted for skin and eye irritation has tripled since 2011: almost 20 % of analysed dossiers contained them for these endpoints.

So far, ECHA's database contains information on 7 939 new experimental studies for those endpoints which may involve vertebrate animal testing. Out of these, 4 887 are tests on vertebrate animals and 3 052 are in vitro tests.

[Read more...](#)

Access report, "[The Use of Alternatives to Testing on Animals for REACH Regulation: Second report under Article 117\(3\) of the REACH Regulation](#)".

Also from ECHA, "[Chesar 2.3 supports SCED-based consumer assessment](#)" and "[New rules on the renewal of biocidal product authorizations subject to mutual recognition](#)".

Environmental Feasibility of the Recycling of Carbon Fibers from CFRPs by Solvolysis Using Supercritical Water

Source: [ACS Sustainable Chemistry and Engineering, April 24, 2014](#)


Authors: Marion Prinçaud, Cyril Aymonier, Anne Loppinet-Serani, Nicolas Perry, and Guido Sonnemann

Originally developed for high-tech applications in the aeronautic and aerospace industry, carbon/epoxy composites have been increasingly used in the automotive, leisure, and sports industries for several years. Nevertheless, the carbon reinforcement is an expensive constituent, and it has been recently shown that it is also the most environmentally impacting in a composite part manufacturing. Recycling these materials (even restricted to the reinforcement recovery) could lead to economic and environmental benefits, while satisfying legislative end-of-life requirements.

The solvolysis of the matrix by water under supercritical conditions is an efficient solution to recover the carbon fiber reinforcement with mechanical properties close to the ones of virgin fibers. This paper aims at demonstrating the environmental feasibility of the recycling of carbon fiber/thermoset matrix composites by solvolysis of the matrix in supercritical water. This demonstration is based on life cycle assessment that evaluates benefits and environmental challenges of this recycling loop.

[Read more...](#)

Also read from *ACS Sustainable Chemistry and Engineering*, "[Lignin-Based Rigid Polyurethane Foam Reinforced with Pulp Fiber: Synthesis and Characterization](#)" and "[Gluten Biopolymer and Nanoclay-Derived Structures in Wheat Gluten-Urea-Clay Composites: Relation to Barrier and Mechanical Properties](#)".



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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