

Greenlist Bulletin

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

This Issue Features Articles on Green Building

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In This Issue

New to the green building movement?

BuildingGreen Case Studies

Green Building: U.S. EPA

OSHA announces new National Emphasis Program for occupational exposure to isocyanates

Chemicals in spray polyurethane foam: How can something so toxic be considered green?

Worldwide Ban On Flame Retardant


EPA Proposes Strict Formaldehyde Limits for Composite Wood Products

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Quick Links

[Greenlist Bulletin Archives](#)

[TURI Website](#)

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Resources

Visit the TURI Library to view the following books on Green Building:

Understanding Green Building Materials

Audubon House

The New Natural House Book

Prescriptions for a Healthy House: A Practical Guide for Architects, Builders, and Homeowners

The Healthy Home

A Primer on Sustainable Building

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.



Editor's Note

Dear Greenlist Subscribers:

We hope you enjoy the compilation of articles and resources we have assembled on green building. Several of the books that the TURI Library has on this topic are featured in the "Resources" box to the left. Need detailed information on safer building products? Visit the TURI library to access the [Pharos database!](#)

Best,
Mary

New to the green building movement?

[Source: U.S. Green Building Council, 2013](#)

Access USGBC's education designed for those new to green building. You'll learn how to contribute expertise to the design, construction, operations and maintenance of buildings and neighborhoods that save energy, use fewer resources, reduce pollution, and contribute to healthier environments for their occupants and the community.

[Read more...](#)

BuildingGreen Case Studies

[Source: BuildingGreen.com, 2013](#)

The High Performance Buildings Database (HPB) provides case studies of projects ranging from homes and commercial interiors to large buildings and even whole campuses and neighborhoods. These may be certified green projects, or simply projects that have one or more notable environmental features. [BuildingGreen] reviews each published case study to focus on useful lessons and consistent energy and environmental data.

Green Building & Remodeling for Dummies

Your Green Home: A Guide to Planning a Healthy, Environmentally Friendly New Home

Green Remodeling: Changing the World One Room at a Time

Eco-Renovation: The Ecological Home Improvement Guide

Guide to Resource Efficient Building Elements (6th edition)

Intelligent Building Dictionary

Green Building Products: The GreenSpec Guide to Residential Building Materials

TURI also subscribes to *Environmental Building News* and the Pharos database.

[Read more...](#)

Green Building: U.S. EPA

[Source: U.S. Environmental Protection Agency, August 21, 2013](#)

The buildings in which we live, work, and play protect us from nature's extremes, yet they also affect our health and environment in countless ways. As the environmental impact of buildings becomes more apparent, a new field called "green building" is gaining momentum.

Green, or sustainable, building is the practice of creating and using healthier and more resource-efficient models of construction, renovation, operation, maintenance and demolition.

[Read more...](#)

OSHA announces new National Emphasis Program for occupational exposure to isocyanates

[Source: U.S. Occupational Safety and Health Administration, June 25, 2013](#)

WASHINGTON -- The Occupational Safety and Health Administration today announced a new National Emphasis Program to protect workers from the serious health effects from occupational exposure to isocyanates. OSHA develops national emphasis programs to focus outreach efforts and inspections on specific hazards in an industry for a three-year period. Through this NEP, OSHA will focus on workplaces in general, construction and maritime industries that use isocyanate compounds in an effort to reduce occupational illnesses and deaths.

"Workers exposed to isocyanates can suffer debilitating health problems for months or even years after exposure," said Assistant Secretary of Labor for Occupational Safety and Health Dr. David Michaels. "Through this program, OSHA will strengthen protections for workers exposed to isocyanates."

Isocyanates are chemicals that can cause occupational asthma, irritation of the skin, eyes, nose and throat, and cancer. Deaths have occurred due to both asthma and hypersensitivity pneumonitis from isocyanates exposure. Respiratory illnesses also can be caused by isocyanates exposure to the skin. Isocyanates are used in materials including paints, varnishes, auto body repair, and building insulation. Jobs that involve exposure to isocyanates include spray-on polyurethane manufacturing, products such as mattresses and car seats and protective coatings for truck beds, boats, and decks.

[Read more...](#)

Access the National Emphasis Program [Directive CPL 03-00-017 on Isocyanates](#).

Also see pages focused on isocyanates from [OSHA](#) and the [National Institute for Occupational Safety and Health](#).

Chemicals in spray polyurethane foam: How can something so toxic be considered green?

[Source: Treehugger, September 4, 2013](#)

Author: Margaret Badore

Spray polyurethane foam is widely promoted as a green building material for its ability to improve energy efficiency. It insulates better per inch than fiberglass or cellulose, which can mean major energy saving on heating and cooling. However, energy efficiency isn't the only consideration when it comes to sustainable building. A closer look at spray foam's chemical makeup reveals a number of substances that are known to be hazardous.

Spray polyurethane foam consists of two liquid chemical components, referred to as "Side A" and "Side B," that are mixed at the site of installation. Side A is mostly made up of isocyanates, while Side B usually contains polyol, flame retardants and amine catalysts. These chemicals create hazardous fumes during the application, which is why installers and nearby workers should wear personal protective gear during this process. Once the foam has fully expanded and dried, manufacturers say it is inert. If the chemicals are not properly mixed, they may not react fully and can remain toxic.

[Read more...](#)

Visit U.S. EPA's Design for Environment page on [Spray Polyurethane Foam](#).

Also read article from *Journal of Occupational & Environmental Medicine*, [Asthma Induced by Exposure to Spray Polyurethane Foam Insulation in a Residential Home](#).

Worldwide Ban On Flame Retardant

Source: [ScienceDaily, August 26, 2013](#)

The flame retardant HBCD may no longer be produced or used. This was decided by representatives from over 160 countries in late May at a UN conference on chemicals in Geneva. Empa's extensive research on HBCD, formerly used as a flame retardant for plastics, electronics and textiles, and especially for insulation panels in buildings, contributed to the new regulation of HBCD under the Stockholm Convention on Persistent Organic Pollutants (POPs).

It is a lengthy process before a contaminant is identified as such and its harmful effects are highlighted with a worldwide ban. This is acknowledged by Norbert Heeb, chemist in Empa's Analytical Chemistry Lab. He was involved in uncovering the exact structures of HBCD (hexabromocyclododecane). On closer inspection, the substance turned out to be a whole group of compounds. Together with researchers from ETH Zurich, Eawag and the Zurich University of Applied Sciences (ZHAW), he published several studies that show how HBCD is structured, which forms tend to accumulate in the environment and count as persistent organic pollutants (POPs).

[Read more...](#)

Read article from the Green Science Policy Institute, [World Sees the Light and Bans HBCD. US Stays in the Dark](#).

Also read some articles referencing alternatives:

Flame Retardant **Chemical Alternatives:**

- From U.S. EPA, [Partnership on Flame Retardant Alternatives for Hexabromocyclododecane \(HBCD\)](#).
- From *Chemical and Engineering News*, [A Polymeric Solution For A Bromine Problem](#).
- From *BUILDER*, [Safer Fire Retardant Makes its Way Onto The Market](#).
- From Phys.org, [Students aim to make new flame retardant for polystyrene - using genetically modified bacteria](#).

Material Alternatives to HBCD and Polystyrene Foam:

- From Subsport, [Alternatives to the use of flame retarded EPS in buildings](#).

TURI's Note: TURI and LCSP created this [case study on HBCDD](#) for Subsport.

System Solutions - e.g., Code Changes:

- From *Environmental Building News*, [Plastics Industry Still Shouting "Fire" At Its Own Peril](#).

EPA Proposes Strict Formaldehyde Limits for Composite Wood Products

Source: [Environmental Building News, June 27, 2013](#)

Author: Brent Ehrlich

In the first significant regulatory move restricting toxic chemicals in years, the U.S. Environmental Protection Agency (EPA) recently proposed two federal rules for regulating formaldehyde emissions from composite wood products -- including domestic and imported particleboard, medium-density

fiberboard (MDF), hardwood plywood, and the finished products made from them.


Combined, the rules are intended to protect people from exposure to formaldehyde, a known carcinogen, but they would also standardize regulations across the U.S., making compliance easier for manufacturers and importers.

The first rule addresses emissions, as covered in the 2010 Formaldehyde Standards for Composite Wood Products Act (Title VI of the Toxic Substances Control Act): these are the same standards used by the California Air Resources Board (CARB). Current CARB standards for formaldehyde are 0.05 parts per million or less; qualifying products that use no-added-formaldehyde resins or ultra-low-emitting formaldehyde resins are exempt from testing.

[Read more...](#)

Also read from *Environmental Building News*, [Making Sense of LEED's New Formaldehyde Ruling](#).

TURI's Note: Formaldehyde was designated as a Higher Hazard Substance in 2012. See our [chemical fact sheet on formaldehyde](#) as well as a TURI Technical Report based on academic research we supported, [Alternative Formaldehyde-Free Particleboard Composition Based on Epoxidized Vegetable Oils. 2009](#).



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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