

# Greenlist Bulletin

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

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## Can Jamaica Plain businesses go carcinogen free?

[Source: \*The Boston Globe\*, October 31, 2014](#)

Author: Rebecca Kessler

When Myra Vargas and her husband took over a dry-cleaning business in Jamaica Plain last spring, they had to make a tough decision: whether to use a common chemical called perchloroethylene, known as perc, or institute a costly change. Vargas knew that perc, which they'd been using to clean clothes at their Roslindale shop for nearly two decades, was dangerous. Years earlier, she'd been warned to stay away from it while pregnant. But she'd recently learned that perc probably causes cancer in dry-cleaning workers. "We went seventeen years using something that was dangerous for everybody," she says.

Extra encouragement to make the change to a safe system known as wet cleaning came from a group called Jamaica Plain New Economy Transition, but it wouldn't be easy. The couple would need to buy all new machinery and pay to get rid of their old, perc-based equipment. And making the switch would cost more than \$100,000, a daunting hurdle. Plus, they'd heard conflicting stories about whether wet cleaning worked as well. But then the project helped them get a \$15,000 state grant and launch a Kickstarter campaign that raised another \$18,000. On September 11, J&P Dry Cleaners celebrated its grand opening as the neighborhood's only wet cleaner and one of only about a dozen in the state.

[Read more...](#)

*TURI's Note:* See our 2012 Methods & Policy Report No. 27, [Assessment of Safer Alternatives to Perchloroethylene](#), and our webpage with extensive information on [wet cleaning](#).

New process transforms wood, crop waste into valuable chemicals

Source: [University of Wisconsin-Madison, November 3, 2014](#)

Author: David Tenenbaum

Scientists today disclosed a new method to convert lignin, a biomass waste product, into simple chemicals. The innovation is an important step toward replacing petroleum-based fuels and chemicals with biorenewable materials, says Shannon Stahl, an expert in "green chemistry" at the University of Wisconsin-Madison.

Lignin is the substance that makes trees and cornstalks sturdy, and it accounts for nearly 30 percent of the organic carbon in the biosphere. Stahl, senior author of a new report in the journal *Nature*, notes that lignin is a waste product of the paper industry, where cellulose is the valuable product. "Lignin is burned as a low-value fuel, but if biofuels are to become a reality, we need to get more value from lignin," he explains.

[Read more...](#)

See original article in *Nature*, "[Formic-acid-induced depolymerization of oxidized lignin to aromatics](#)".

Also see information on a conference being held next week in the United Kingdom on "[Renewable Chemicals from Lignin](#)".

### IARC evaluates the carcinogenicity of carbon nanotubes

Source: [SafeNano, November 4, 2014](#)

... [From] 30th September - 7th October 2014, 21 experts from ten countries attended a meeting at the International Agency for Research on Cancer (IARC; Lyon, France) to assess the carcinogenicity of carbon nanotubes (CNTs), including single-walled (SWCNTs) and multi-walled (MWCNTs), as well as fluoro-edenite and silicon carbide (SiC) fibres and whiskers. ...

Based on a comprehensive assessment of the available evidence, a majority of the Working Group did not consider the mechanistic evidence for carcinogenicity to be strong for any particular type of CNT, in particular concerning chronic endpoints where data is severely limited. However given the evidence available, it was agreed to classify specifically the MWCNT-7 sample, as 'possibly carcinogenic to humans (Group 2B)'. Moreover, it was determined that, due to a lack of coherent evidence, it was not possible to generalise from one type of CNT to other types. Therefore, other forms of CNT, namely SWCNT and other types of MWCNT (excluding MWCNT-7), were categorised as 'not classifiable as to their carcinogenicity to humans (Group 3)'.

[Read more...](#)

See article in *The Lancet Oncology*, "[Carcinogenicity of fluoro-edenite, silicon carbide fibres and whiskers, and carbon nanotubes](#)".

### No Escape - Tests Find Toxic Fire Retardants in Mothers -- and Even More in Toddlers

Source: [Environmental Working Group, August 2014](#)

A new research study conducted by the Environmental Working Group and Duke University has found evidence of exposure to TDCIPP, a cancer-causing fire retardant, in the bodies of all 48 mothers and their children tested. In the children, the average concentration of a chemical biomarker left when TDCIPP breaks down was nearly five times that of the average in the mothers. In the most extreme case, a child had 23 times the level measured in the mother.

The EWG-Duke study, the first to evaluate children's exposure to TDCIPP, documents that children in critical windows of development are experiencing exposure to a chemical listed as a carcinogen by California health authorities.

Download report [here](#).

See original study in *Environmental Science & Technology*, "[Metabolites of Organophosphate Flame Retardants and 2-Ethylhexyl Tetrabromobenzoate in Urine from Paired Mothers and Toddlers](#)".

### Changing Interpretation of Human Health Risks from Perfluorinated Compounds

Source: [Public Health Reports, November-December 2014, Volume 129](#)

Perfluorinated compounds (PFCs) have been in use for more than 60 years. Perfluorooctanoic acid (PFOA) was a primary PFC product at the 3M facility in Cottage Grove, Minnesota, but perfluorooctane sulfonate (PFOS) and other PFCs were also produced. The PFCs show high thermal, chemical, and biological inertness – properties that make them useful for certain industrial purposes, but at the same time also resulted in environmental persistence and potential human health risk. Little was published in scientific journals on PFC toxicology until the 1980s, perhaps because compounds resistant to breakdown were erroneously considered inert. Gradually, evidence for persistent, bioaccumulative effects has emerged, raising warning signs.

[Read more...](#)

Also see draft health effects documents from the U.S. Environmental Protection Agency on [Perfluorooctanoic Acid \(PFOA\)](#) and [Perfluorooctane Sulfonate \(PFOS\)](#).

### Analysis of Hydraulic Fracturing Flowback and Produced Waters Using Accurate Mass: Identification of Ethoxylated Surfactants

[Source: Analytical Chemistry, August 27, 2014](#)

Authors: E. Michael Thurman, Imma Ferrer, Jens Blotvogel, and Thomas Borch

Two series of ethylene oxide (EO) surfactants, polyethylene glycols (PEGs from EO3 to EO33) and linear alkyl ethoxylates (LAEs C-9 to C-15 with EO3-EO28), were identified in hydraulic fracturing flowback and produced water using a new application of the Kendrick mass defect and liquid chromatography/quadrupole-time-of-flight mass spectrometry. The Kendrick mass defect differentiates the proton, ammonium, and sodium adducts in both singly and doubly charged forms. A structural model of adduct formation is presented, and binding constants are calculated, which is based on a spherical cagelike conformation, where the central cation ( $\text{NH}_4^+$  or  $\text{Na}^+$ ) is coordinated with ether oxygens. A major purpose of the study was the identification of the ethylene oxide (EO) surfactants and the construction of a database with accurate masses and retention times in order to unravel the mass spectral complexity of surfactant mixtures used in hydraulic fracturing fluids. For example, over 500 accurate mass assignments are made in a few seconds of computer time, which then is used as a fingerprint chromatogram of the water samples. This technique is applied to a series of flowback and produced water samples to illustrate the usefulness of ethoxylate "fingerprinting", in a first application to monitor water quality that results from fluids used in hydraulic fracturing.

[Read more...](#)

### Beauty and Its Beast Report: Unmasking the Impact of Toxic Chemicals on Salon Workers

[Source: Women's Voices For The Earth, November 2014](#)

Author: Alexandra Scranton

Salons can be a hazardous place to work given that many harmful chemicals can be found in salon products. Women working in salons are exposed to these chemicals for many hours at a time on a daily basis.

This is the first report ever to document how nasty chemicals lurking in hair sprays, permanent waves, acrylic nail application and other salon products are harming the health of women who work in salons. Disturbingly, we found that salon workers are at an increased risk of cancer, miscarriages, neurological disorders, immune disorders, asthma, dermatitis and more.

[Read more...](#)

Report available [here](#).

Also see article from the *Journal of Immigrant and Minority Health*, "[Indoor air quality survey of nail salons in Boston](#)".

TURI's Note: See [our work with nail and hair salons](#).

### Exposure to indoor air pollutants during physical activity in fitness centers

[Source: Building and Environment, December 2014](#)

Physical activity has become a social need among people and it has been clearly proved that exercise is a way to prevent all-cause and cardiovascular-related death, diabetes mellitus and obesity. However, athletes and the common individual can be at risk when they are practicing exercise in polluted environments. In 2012, a monitoring program was undertaken in 11 fitness centers from Lisbon where comfort parameters (temperature and humidity) and indoor air pollutants (PM<sub>10</sub>, PM<sub>2.5</sub>, CO<sub>2</sub>, CO, CH<sub>2</sub>O and VOC) were measured. Three gyms were selected to perform a deeper analysis consisting of longer measurement periods and more parameters, such as particle chemical composition and nanoparticle lung deposition. Measurements were performed during the occupation time, in the studios and in the bodybuilding room, in order to recognize daily patterns and to identify pollutant sources. The pollutants CO<sub>2</sub>, VOC and CH<sub>2</sub>O presented high concentrations exceeding the national limit values, while O<sub>3</sub> and CO did not present concerning levels. Pollutant continuous measurements demonstrated increased levels of particles when the spaces were occupied during classes. Results indicated that it is crucial to optimize the HVAC systems, ventilation rates and occupants behavior in order to reduce the exposure to air pollutants in fitness centers and to potentiate the benefits of sport activities.

[Read more...](#)

See article in *The New York Times*, "[The Bad Air in Our Gyms](#)".

Also see from *Environmental Health News*, "[Urine + chlorine may equal health risks at pools](#)".

### UH Chemists Develop Porous Molecules that Bind Greenhouse Gases

[Source: University of Houston, November 13, 2014](#)

Author: Lisa Merkl

A team of University of Houston (UH) chemistry researchers have developed a molecule that assembles spontaneously into a lightweight structure with microscopic pores capable of binding large quantities of several potent greenhouse gases.

"Greenhouse gases, such a carbon dioxide, have received much attention lately because of their potential to dramatically affect Earth's climate, primarily the temperature of the planet," said Ognjen Miljanić, a UH associate professor of chemistry and leader of the team.

While carbon dioxide presents the biggest problem, Miljanić notes that several other compounds are hundreds or thousands of times more potent in their greenhouse effect per unit of mass. These compounds include Freons, used as common refrigerants, and fluorocarbons, highly stable organic compounds in which one or more hydrogen atoms have been replaced with fluorine.

"We developed a molecule that self-assembles into a structure that can capture these greenhouse vapors to the tune of 75 percent by weight," Miljanić said. "This molecule could be used to capture Freons from disposed refrigeration systems, for example, or to concentrate them prior to analysis of their content."

[Read more...](#)

See original paper in *Nature Communications*, "[Thermally robust and porous noncovalent organic framework with high affinity for fluorocarbons and CFCs](#)".

### Natural Grass vs. Synthetic Turf Study Report (Updated link)

[Source: Government of Western Australia - Department of Sport and Recreation, 2014](#)


An organisation's (sport club, association, local or state government) decision to have a natural grass or synthetic turf comes down to their specific objectives for environmental, social, health and financial outcomes.

In addition to the Decision Making Guide, the following is a detailed report on natural grass vs synthetic turf for bowls, tennis, hockey, soccer/rugby, ovals (football/cricket) and/or any relevant multi-purpose facilities, that the Department of Sport and Recreation (DSR) and other key stakeholders can use to assist with decision making, policy and planning. The report will consider the factors that contribute to the choice of playing surface, in terms of performance, safety and playing facility requirements for the above sports.

In addition to details on the specific sports, the current knowledge on environmental, social, health and financial implications of synthetic turf compared to natural turf will be presented in detail.

Access report by sections [here](#).

*TURI's Note:* This report has been featured a second time as the links in the October 31, 2014 issue of *Greenlist* are no longer active.



Please send a message to [mary@turi.org](mailto: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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