

# Greenlist Bulletin

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

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## Prenatal Polybrominated Diphenyl Ether Exposures and Neurodevelopment in U.S. Children through 5 Years of Age: The HOME Study

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

Authors: Aimin Chen, Kimberly Yolton, Stephen A. Rauch, Glenys M. Webster, Richard Homung, Andreas Sjodin, Kim N. Dietrich, and Bruce P. Lanphear

Background: Polybrominated diphenyl ethers (PBDEs) are persistent chemicals that have been widely used as flame retardants in furniture, carpet padding, car seats, and other consumer products during the past three decades.

Objective: We examined whether in utero exposure to PBDEs is associated with child cognitive function and behavior in a U.S. study sample. ...

Conclusions: Prenatal exposure to PBDEs was associated with lower IQ and higher hyperactivity scores in children.

[Read more...](#)

Also see Children's Environmental Health Network's August 2014 article of the month from *EHP*, "[Gestational Exposure to Endocrine-Disrupting Chemicals and Reciprocal Social, Repetitive, and Stereotypic Behaviors in 4- and 5-Year-Old Children: The HOME Study](#)".

## New solutions needed to recycle fracking water

[Source: Rice University, August 28, 2014](#)

HOUSTON -- (Aug. 28, 2014) -- Rice University scientists have produced a detailed analysis of water produced by hydraulic fracturing (aka fracking) of three gas reservoirs and suggested environmentally friendly remedies are needed to treat and reuse it.

More advanced recycling rather than disposal of "produced" water pumped back out of wells could calm fears of accidental spillage and save millions of gallons of fresh water a year, said Rice chemist Andrew Barron, who led the study that appeared this week in the Royal Society of Chemistry journal *Environmental Science: Processes and Impacts*.

The amount of water used by Texas drillers for fracking may only be 1.5 percent of that used by farming and municipalities, but it still amounts to as much as 5.6 million gallons a year for the Texas portion of the Haynesville formation and 2.8 million gallons for Eagle Ford. That, Barron said, can place a considerable burden on nearby communities.

[Read more...](#)

See original study in *Environmental Science: Processes & Impacts*, "[Organic compounds in produced waters from shale gas wells](#)".

Also see article in *Los Angeles Times*, "[Limited water presents challenge for natural gas fracking](#)".

## Leading scientists call for a stop to non-essential use of fluorochemicals

[Source: Technical University of Denmark - National Food Institute, August 27, 2014](#)

Author: Xenia Trier

Fluorochemicals are synthetically produced chemicals, which repel water and oil and are persistent towards aggressive physical and chemical conditions in industrial processing. These characteristics have made the fluorochemicals useful in numerous processes and products, such as coatings for food paper and board.

The problem with fluorochemicals is that they are difficult to break down and accumulate in both humans and the environment. Some fluorochemicals have known correlations with harmful health effects, such as cancer, increased cholesterol and a weaker immune system in children. They can also decrease men's and women's ability to reproduce, and the chemicals can be transferred from mother to child during pregnancy and through breastmilk.

Research chemist, Dr. Xenia Trier from the National Food Institute, Technical University of Denmark and a number of international research colleagues therefore recommend that fluorochemicals are only used where they are absolutely essential, as long as measurement methods and knowledge about their potentially harmful effects are limited. The researchers drew up the statement after attending a scientific conference about fluorinated substances (5th International workshop on poly- and perfluorinated substances (PFAS)), held in Helsingør, Denmark in October 2013.

[Read more...](#)

Also see fact sheet from the National Institute of Environmental Health Sciences, [Perfluorinated Chemicals \(PFCs\)](#).

## Yale Journal Explores Advances In Sustainable Manufacturing

[Source: Yale School of Forestry & Environmental Studies, August 25, 2014](#)

Author: Kevin Dennehy

In a special issue of the *Journal of Industrial Ecology (JIE)*, "**Sustainability in Manufacturing: The Role of Life Cycle Engineering**", experts from a range of disciplines including industrial ecologists, manufacturing and design engineers, and production and operations researchers - explore the latest research on sustainable manufacturing and how life cycle engineering is being used to reduce environmental impact.

Some highlights from the issue include:

- Mohannad Shuaib and colleagues from the University of Kentucky **introduce a Product Sustainability Index** that comprehensively assesses the sustainability of a product-based on four life cycle stages: pre-manufacturing, manufacturing, use, and post-use.
- Tatiana Tambouratzis and colleagues from the University of Piraeus in Greece present a system **based on artificial intelligence for the identification of sustainable materials**.
- Esther Sanye-Mengual from the Universitat Autònoma de Barcelona and colleagues argue that the maintenance of products and strategies to influence that maintenance **should be included in product design** and communications with users.
- In a complementary article, Livier Serna-Mansoux and colleagues from SEATECH/SUPMECA in France **assess the relationship between consumers and products** and suggest strategies that could "nudge" consumers to use products in a way that exacts lower environmental costs.
- Karsten Schischke from the Fraunhofer Institute for Reliability and Microintegration IZM and colleagues explore the potential energy savings and efficiency benefits **through eco-design standards for industrial equipment**, including welding equipment.
- Quanyin Tan from Tsinghua University and colleagues **quantify the benefits of remanufacturing older products in China**.

[Read more...](#)

Access the special issue [here](#).

### Acrylamide exposure impairs blood-cerebrospinal fluid barrier function

[Source: Neural Regeneration Research, May 9, 2014](#)

Authors: Xue Yao, Yanshu Zhang, Licheng Yan, Lin Yao, Weijun Guan, Fanxu Zeng, Fuyuan Cao

Previous studies show that chronic acrylamide exposure leads to central and peripheral neuropathy. However, the underlying mechanisms remained unclear. In this study, we examined the permeability of the blood-cerebrospinal fluid barrier, and its ability to secrete transthyretin and transport leptin of rats exposed to acrylamide for 7, 14, 21 or 28 days. Transthyretin levels in cerebrospinal fluid began to decline on day 7 after acrylamide exposure. The sodium fluorescein level in cerebrospinal fluid was increased on day 14 after exposure. Evans blue concentration in cerebrospinal fluid was increased and the cerebrospinal fluid/serum leptin ratio was decreased on days 21 and 28 after exposure. In comparison, the cerebrospinal fluid/serum albumin ratio was increased on day 28 after exposure. Our findings show that acrylamide exposure damages the blood-cerebrospinal fluid barrier and impairs secretory and transport functions. These changes may underlie acrylamide-induced neurotoxicity.

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### Exposure to Toxins Makes Great Granddaughters More Susceptible to Stress

[Source: The University of Texas at Austin, August 25, 2014](#)

Scientists have known that toxic effects of substances known as endocrine disrupting chemicals (EDCs), found in both natural and human-made materials, can pass from one generation to the next, but new research shows that females with ancestral exposure to EDC may show especially adverse reactions to stress.

According to a new study by researchers from The University of Texas at Austin and Washington State University, male and female rats are affected differently by ancestral exposure to a common fungicide, vinclozolin. Female rats whose great grandparents were exposed to vinclozolin become much more vulnerable to stress, becoming more anxious and preferring the company of novel females to familiar females. Males who have the same combination of ancestral exposure and stress do not have the same adverse effects.

[Read more...](#)

See original article in *Endocrinology*, "[Sexually dimorphic effects of ancestral exposure to vinclozolin on stress reactivity in rats.](#)"

Also see article in *PLoSOne*, "[Plastics Derived Endocrine Disruptors \(BPA, DEHP and DBP\) Induce Epigenetic Transgenerational Inheritance of Obesity, Reproductive Disease and Sperm Epimutations.](#)"

## Vitamin C In, BPA Out For Receipts

Source: [Chemical & Engineering News, September 1, 2014](#)

Author: Craig Bettenhausen

A new cash-register-receipt paper from specialty papermaker Appvion uses vitamin C instead of bisphenol A as the enabling chemical for thermal printing. BPA was dropped from many food storage and packaging products over concerns it might disrupt hormone signals, but BPA and related compounds are still commonly used to print receipts.

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## ECHA's proposal to add new substances to the Authorisation List is now in public consultation

Source: [European Chemicals Agency, September 1, 2014](#)

Helsinki, 1 September 2014 -- The Agency regularly recommends substances from the Candidate List for inclusion in the Authorisation List (Annex XIV of REACH) to the European Commission. Based on an assessment of the data from the registration dossiers and other available information, and the initial consultation of the Member State Committee, ECHA considers recommending the following priority substances:

- Two substances obtained from coal tar: Anthracene oil; Pitch, coal tar, high temp.
- Seven lead substances: Orange lead (lead tetroxide); Lead monoxide (lead oxide); Tetralead trioxide sulphate; Pentalead tetraoxide sulphate; Silicic acid, lead salt; Pyrochlore, antimony lead yellow; Acetic acid, lead salt, basic.
- Four boron substances: Boric acid; Disodium tetraborate, anhydrous; Diboron trioxide; Tetraboron disodium heptaoxide, hydrate.
- Seven phthalates: Diisopentylphthalate; 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich; 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters; 1,2-Benzenedicarboxylic acid, dipentylester, branched and linear; Bis(2-methoxyethyl) phthalate; N-pentyl-isopentylphthalate; Dipentyl phthalate.
- 4-Nonylphenol, branched and linear, ethoxylated. [1]
- 1-Bromopropane (n-propyl bromide).

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## The French Agency for Food, Environmental and Occupational Health & Safety publish opinion on the assessment of the risks associated with nanomaterials

Source: [SafeNano, September 1, 2014](#)

The French Agency for Food, Environmental and Occupational Health & Safety (ANSES) have published an opinion on the assessment of the risks associated with nanomaterials -- issues and update of current knowledge. The opinion follows an internal request in 2012 for an update of current knowledge and review of the "key" issues relating to the assessment of risks associated with nanomaterials to human health and the environment.

[Read more...](#)

Access full report [here](#).

## Carbon Tetrachloride Emissions Continue Despite Ban

Source: [Chemical & Engineering News, September 1, 2014](#)

Author: Cheryl Hogue


To protect Earth's ozone layer, most uses of carbon tetrachloride were banned years ago. According to reports filed by countries around the world, emissions of this ozone-depleting substance were virtually nil since 2007. But researchers now estimate that some 39,000 metric tons of the chemical were released each year from 2000 to 2012.

"We are not supposed to be seeing this," says Qing Liang, a NASA atmospheric scientist who led an international team that made the finding. ... "There are either unidentified industrial leakages, large emissions from contaminated sites, or unknown CCl<sub>4</sub> sources."

[Read more...](#)

See original article in *Geophysical Research Letters*, "[Constraining the carbon tetrachloride \(CCl<sub>4</sub>\) budget using its global trend and inter-hemispheric gradient](#)".

Also see press release from the National Aeronautics and Space Administration, "[Ozone-Depleting Compound Persists, NASA Research Shows](#)".



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