

Greenlist Bulletin

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

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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.



Engineering safer-by-design nanoparticles for consumer products

Source: [SAFENANO, February 18, 2014](#)

New research published this month in *Environmental Science: Nano* indicates that zinc oxide (ZnO) nanoparticles coated with an inert layer of silica could reduce the potential hazards of these materials for use in sunscreens and other consumer products.

In recent years, ZnO nanoparticles have been used in sunscreens because of their ability to block ultraviolet (UV) radiation and produce less opaque products that are attractive to consumers. However, the potential adverse health effects of nanoparticles have not been fully explored and there is evidence to suggest that these materials may cause adverse effects in both humans and the environment.

[Read more...](#)

Read original article in *Environmental Science: Nano*, "[Engineering safer-by-design, transparent, silica-coated ZnO nanorods with reduced DNA damage potential.](#)"

Also read from SAFENANO, "[US and Canada develop Classification Scheme for Nanomaterials.](#)"

[Source: *Regulatory Toxicology and Pharmacology*, April 2014](#)

Authors: Steven C. Gordon, John H. Butala, Janet M. Carter, Alison Elder, Terry Gordon, George Gray, Philip G. Sayre, Paul A. Schulte, Candace S. Tsai, Jay West

Occupational exposure limits (OELs) are important tools for managing worker exposures to chemicals; however, hazard data for many engineered nanomaterials (ENMs) are insufficient for deriving OELs by traditional methods. Technical challenges and questions about how best to measure worker exposures to ENMs also pose barriers to implementing OELs. New varieties of ENMs are being developed and introduced into commerce at a rapid pace, further compounding the issue of OEL development for ENMs. A Workshop on Strategies for Setting Occupational Exposure Limits for Engineered Nanomaterials, held in September 2012, provided an opportunity for occupational health experts from various stakeholder groups to discuss possible alternative approaches for setting OELs for ENMs and issues related to their implementation. This report summarizes the workshop proceedings and findings, identifies areas for additional research, and suggests potential avenues for further progress on this important topic.

[Read more...](#)

Chemical regulation changes urged to diminish pediatric brain disorders

[Source: *Healio Pediatrics*, February 18, 2014](#)

Author: Philippe Grandjean

Recent data suggest that changes must be made to current chemical risk procedures to protect children from everyday toxins that have been linked to brain development disorders.

Growing evidence significantly links childhood exposure to hazardous chemicals such as mercury, lead, and certain solvents and pesticides to an increased risk for brain development disorders.

A study published in *The Lancet Neurology* re-examines the correlation between chemicals used in everyday items, such as clothing, furniture and toys, and neurodevelopmental disorders among children.

"The vast majority of the more than 80,000 industrial chemicals in widespread use in the United States have never been tested for their toxic effects on the developing fetus or child. Exposure to these chemicals during early development can cause brain injury at levels much lower than those affecting adults," study researcher Philippe Grandjean, MD, of the Harvard School of Public Health, said in a press release.

Study findings show that the number of known chemical causes of neurodevelopmental disorders increased from 6 to 12 in the past 7 years. Chemicals that damage the human brain and have not been regulated for use among children have increased from 202 to 214.

[Read more...](#)

See the original study in *The Lancet Neurology*, "[Neurobehavioural effects of developmental toxicity](#)."

TURI's Note: The TURI Library has recently acquired a copy of Dr. Grandjean's book, *Only One Chance: How Environmental Pollution Impairs Brain Development - and How to Protect the Brains of the Next Generation*.

Drycleaning Chemical Disclosure Rule Takes Effect in New York City

[Source: *American Drycleaner*, February 24, 2014](#)

NEW YORK -- A new rule requiring New York City dry cleaners to post signs disclosing the primary chemicals used in the drycleaning process took effect Feb. 11, according to the New York City Department of Environmental Protection (DEP).

About 1,400 drycleaning businesses throughout New York City are now required to list the chemicals and a link to information about their potential health effects. DEP developed the new disclosure rule in close consultation with the National Cleaners Association and other industry groups.

[Read more...](#)

Also read "[Levi Strauss tests 100% recycled water in parts of its jeans production](#)".

Greenpeace finds waterway pollutants in luxury fashion brands

[Source: Reuters.com, February 17, 2014](#)

Author: Emma Thomasson

(Reuters) -- Environmental campaign group Greenpeace has found traces of chemicals that can pollute waterways in children's clothing and shoes made by luxury brands, challenging the sector's reputation for higher standards than those of mass fashion.

In a report issued on Monday just before Milan Fashion Week, Greenpeace said it found the substances in products from Dolce & Gabbana, Giorgio Armani, Versace, Hermes, Christian Dior, Louis Vuitton and Marc Jacobs.

Greenpeace has been campaigning against pollutants used in the textile industry since 2011. It wants major brands and their suppliers to commit to stop discharging potentially harmful chemicals in waste water by 2020.

Concerned about toxicity to aquatic organisms and the fact some do not biodegrade easily, the European Union has restricted the industrial use of some of these chemicals but there are no rules on the sales of textiles containing their residues.

Greenpeace said 12 of the 27 articles it tested contained residues of nonylphenol ethoxylates (NPEs) used in textile manufacturing which it said can break down into hormone-disrupting chemicals when released from garments during washing.

In five items, the group said it also found per- and polyfluorinated chemicals (PFCs) used to make garments water repellent. Five articles tested positive for phthalates, used in printing designs on clothing, and three for antimony, a compound used to manufacture polyester.

[Read more...](#)

Natural Garlic Oil as a High-Performance, Environmentally Friendly, Extreme Pressure Additive in Lubricating Oils

[Source: ACS Sustainable Chemistry and Engineering, February 11, 2014](#)

Authors: Weimin Li, Cheng Jiang, Mianran Chao, and Xiaobo Wang

This paper describes natural garlic oil (NGO) as a high-performance, environmentally friendly, extreme pressure additive for lubricating oils. The chemical composition of NGO was analyzed by gas chromatography-mass spectrometry (GC-MS). The load-carrying capacities of NGO and sulfurized isobutylene (SIB) in different base fluids were comparatively evaluated by a four-ball tester and an optimal SRV-IV oscillating reciprocating friction and wear tester (SRV tester). The four-ball test results revealed that incorporation of 1 wt % NGO into the base fluids could significantly improve the weld point of the base fluids from approximately 126 to 800 kgf or higher. Moreover, the four-ball test and SRV test results demonstrated that NGO could provide superior load-carrying ability in the selected base fluids than the conventional extreme pressure additive SIB. In addition, X-ray photoelectron spectroscopy (XPS) results showed that NGO and SIB experienced a similar tribochemical process with the generation of tribofilms composed with iron oxides, iron sulfates, iron sulfide, etc. NGO showed great promise for use as an effective, eco-friendly, extreme pressure additive for application in environmentally sensitive areas.

[Read more...](#)

Crib Mattresses Expose Infants To Elevated Levels Of Volatile Organic Compounds

[Source: Chemical and Engineering News, February 27, 2014](#)

Author: Janet Pelley

Infants and toddlers spend much of their day being shuttled from their crib to a changing table to a cushioned car seat, putting them in close contact with products that contain foam. A new study shows for the first time that foam crib mattresses give off significant amounts of volatile organic compounds (VOCs) and that infants are exposed to elevated levels of these potentially harmful

chemicals as they sleep. . . .

In the process of making foam-based consumer products, manufacturers use a variety of resins, catalysts, solvents, and adhesives, many of which can volatilize from the final product. Earlier studies have linked chronic exposure to low concentrations of VOCs to elevated risks of lung infections, allergies, and asthma in infants. And because these children spend 12 to 13 hours per day sleeping, an actively emitting crib mattress could be an important source of exposure to VOCs. So Brandon Boor, an environmental engineer at the University of Texas, Austin, decided to measure the amount of VOCs given off by crib mattresses and estimate the dose that an infant might inhale while sleeping.

[Read more...](#)

See original study in *Environmental Science and Technology*, "[Infant Exposure to Emissions of Volatile Organic Compounds from Crib Mattresses.](#)"

Decomposition of Toxic Chemical Substance Management in Three U.S. Manufacturing Sectors from 1991 to 2008

[Source: Journal of Industrial Ecology, June 2013](#)

Authors: Hidemichi Fujii and Shunsuke Managi

This study analyzes toxic chemical substance management in three U.S. manufacturing sectors from 1991 to 2008. Decomposition analysis applying the logarithmic mean Divisia index is used to analyze changes in toxic chemical substance emissions by the following five factors: cleaner production, end-of-pipe treatment, transfer for further management, mixing of intermediate materials, and production scale. Based on our results, the chemical manufacturing sector reduced toxic chemical substance emissions mainly via end-of-pipe treatment. In the meantime, transfer for further management contributed to the reduction of toxic chemical substance emissions in the metal fabrication industry. This occurred because the environmental business market expanded in the 1990s, and the infrastructure for the recycling of metal and other wastes became more efficient. Cleaner production is the main contributor to toxic chemical reduction in the electrical product industry. This implies that the electrical product industry is successful in developing a more environmentally friendly product design and production process.

[Read more...](#)

Endocrine disruptors: a report that marks an important moment!

[Source: Health and Environment Alliance, February 27, 2014](#)

Brussels, 27 February 2014 -- The Health and Environment Alliance (HEAL) has joined French member NGOs, Générations Futures (GF) and Réseau Environnement Santé (RES) in welcoming a report from the French parliament's Committee on European Affairs which focuses on the European Strategy on Endocrine Disrupting Chemicals (EDCs). The report's findings call on the French government and EU to react urgently on EDCs.

[Read more...](#)

See the European Commission, '[Minutes of the expert meeting on endocrine disruptors](#)'.

Also read from *Environmental Health Perspectives*, "[A Question for Women's Health: Chemicals in Feminine Hygiene Products and Personal Lubricants.](#)"

Obscure Chemical Taints Water Supply

[Source: Chemical & Engineering News, February 17, 2014](#)

Authors: Alexander H. Tullo, Jyllian Kemsley, Cheryl Hogue, and Susan R. Morrissey

West Virginia Gov. Earl Ray Tomblin gave the 300,000 residents of Charleston unwanted and unexpected news on Jan. 9. Their water was tainted with an obscure chemical used in coal processing. He ordered them to stay away from their taps. . . .

Another West Virginia resident, Mark Darcy, a manufacturing process chemist at a local chemical plant, found out about the water ban on his way home from work.

The first thing Darcy did when he got home was try to find out the name of the chemical, he tells


C&EN. It turned out to be crude 4-methylcyclohexanemethanol (MCHM). "That doesn't sound fantastically hazardous," Darcy recalls thinking. But after pulling up the chemical's safety data sheet, "I figured I wouldn't want to drink it," he says.

State officials referred to the same document, but it contains little toxicity information, leaving them in the dark about the threat posed by the water contamination. This situation has since raised many questions with lawmakers and the public about the chemical as well as other substances later disclosed to be blended with it. The questions vary from what these chemicals are used for to why more toxicity information about them isn't available.

[Read more...](#)

Also read in *Environmental Health Perspectives*, "[Chemical Contaminants in Drinking Water: Where Do We Go From Here?](#)" and "[Assessing Exposure and Health Consequences of Chemicals in Drinking Water: Current State of Knowledge and Research Needs](#)".

TURI's Note: Access our [Library Guide on Environmental, Health and Safety Data Resources](#) for information that is beyond what may be found on a traditional material safety data sheet.



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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