

Greenlist Bulletin

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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.



The Endocrine Society Issues Statement of Principles

[Source: Environmental Health Perspectives, August 31, 2012](#)

Author: Charles W. Schmidt

A new position statement from The Endocrine Society provides a strong argument for scientists in industry, government, and academia to work together, across disciplines, to improve testing of chemicals as potential endocrine disruptors. Published ahead of print in *Endocrinology* on 25 June 2012, the statement focuses on the Environmental Protection Agency's (EPA) Endocrine Disruptor Screening Program (EDSP) to illustrate how fundamental endocrinology principles might be incorporated into more rigorous screens for endocrine activity. But according to lead author R. Thomas Zoeller, a biology professor at the University of Massachusetts, Amherst, the need for broader consideration of endocrinology extends to screening programs beyond the EDSP. . . .

Given that they mimic hormones, endocrine disruptors don't behave like other toxicants, Zoeller explains. Chemical effects generally increase with greater exposure, but hormones rarely display dose linearity. . . .

The Endocrine Society's view is that exposure levels employed in the EDSP's Tier 1 assays – which start with the maximum tolerated doses identified in previous toxicology testing, then work their way down – are so high as to potentially miss low-dose, nonmonotonic effects. . . .

The statement explains that screening only for a limited set of end points that does not reflect full understanding of endocrinology principles means bona fide endocrine disruptors could slip through undetected.

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LEDs winning light race to save energy, the environment

[Source: Pacific Northwest National Laboratory, September 5, 2012](#)

Author: Frances White

RICHLAND, Wash. - Today's light-emitting diode light bulbs have a slight environmental edge over compact fluorescent lamps. And that gap is expected to grow significantly as technology and manufacturing methods improve in the next five years, according to a new report from the Department of Energy's Pacific Northwest National Laboratory and UK-based N14 Energy Limited.

"The light-emitting diode lamp is a rapidly evolving technology that, while already energy efficient, will become even more so in just a few short years," said Marc Ledbetter, who manages PNNL's solid-state lighting testing, analysis and deployment efforts. "Our comprehensive analysis indicates technological advancements in the near future will help people who use these lamps to keep shrinking their environmental footprints."

The report examines total environmental impact, including the energy and natural resources needed to manufacture, transport, operate and dispose of light bulbs. Fifteen different impacts were considered when evaluating environmental footprints, including the potential to increase global warming, use land formerly available to wildlife, generate waste and pollute water, soil and air. The report examines the complete life cycles of three kinds of light bulbs: light-emitting diodes, also called LEDs, compact fluorescents, or CFLs, and traditional incandescent light bulbs.

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Children Exposed to Two Chemicals in Plastics Have Elevated Risk of Asthma-Related Airway Inflammation

[Source: Columbia University Mailman School of Public Health, September 5, 2012](#)

Children exposed to diethyl phthalate (DEP) and butylbenzyl phthalate (BBzP) – phthalate chemicals commonly found in personal care and plastic products – have elevated risk of asthma-related airway inflammation, according to researchers at Columbia Center for Children's Environmental Health (CCCEH) at the Mailman School of Public Health.

Of the 244 children aged 5 to 9 in the study, all had detectable levels of phthalates in their urine although these varied over a wide range. Higher levels of both phthalates were associated with higher levels of nitric oxide in exhaled breath, a biological marker of airway inflammation. The association between BBzP exposure and airway inflammation was especially strong among children who had recently reported wheeze, a common symptom of asthma. Results were recently published online in the *American Journal of Respiratory and Critical Care Medicine*.

"While many factors contribute to childhood asthma, our study shows that exposure to phthalates may play a significant role," says Allan Just, PhD, first author on the new CCCEH study and current postdoctoral researcher at the Harvard School of Public Health.

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Waste cooking oil makes bioplastics cheaper

[Source: Society for General Microbiology, September 3, 2012](#)

'Bioplastics' that are naturally synthesized by microbes could be made commercially viable by using waste cooking oil as a starting material. This would reduce environmental contamination and also give high-quality plastics suitable for medical implants, according to scientists presenting their work at the Society for General Microbiology's Autumn Conference at the University of Warwick.

The Polyhydroxyalkanoate (PHA) family of polyesters is synthesized by a wide variety of bacteria as an energy source when their carbon supply is plentiful. Poly 3-hydroxybutyrate (PHB) is the most commonly produced polymer in the PHA family. Currently, growing bacteria in large fermenters to produce high quantities of this bioplastic is expensive because glucose is used as a starting material.

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And the finalists are ...

[Source: ICIS Chemical Business, August 10, 2012](#)

Competition is very much in the air with the success of the London 2012 Olympic Games. And ICIS is pleased to maintain the excitement as we publish the shortlist of innovations that will go through to final round of the ICIS Innovation Awards 2012.

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TURI's Note: Some of this year's candidates include:

Clariant Produkte (Deutschland)

DEPAL - a breakthrough in non-halogenated fire protection

The search for effective and environmentally safer non-halogenated flame retardants (FRs) for use in engineering thermoplastics has led Swiss specialty chemical producer Clariant to develop a series of products based on aluminum salts of diethyl phosphinic acid (DEPAL), sold under its brand name of Exolit OP. These have wide potential for use as FRs in polyesters, polyamides and also thermoplastic elastomers.

Myriant

Make it greener with Myriant's Myrifilm

US-based Myriant specializes in developing technology to produce chemicals from renewable, non-food-based feedstocks, and will begin commercial production of bio-succinic acid from low-cost sugars in the US in early 2013 at a 136,000 tonne/year plant in Lake Providence, Louisiana. It is carrying innovation downstream and is now offering a bio-succinic acid-based coalescing solvent for use in coatings and adhesives, called Myrifilm.

WTS

Rare metal and specialty material reclamation

US-based waste stream expert WTS has been working with a Chinese minor metals technology group to develop a technology to recover selenium from the sludge by-product produced by a multinational chemical company. The sludge was previously landfilled. To recycle the selenium, WTS modified the traditional refining process used on metal sulphide ores. The process includes acid digestion, precipitation and purification to 5N/6N grade. . . . Selenium is used in photocopying, photocells, light meters and solar cells.

Hycrete

Hycrete concrete admixtures for sustainable construction

Concrete is a major construction material, and by improving its in-use lifetime and reducing landfill after demolition, there are big sustainability gains to be won. US-based Hycrete has developed an admixture technology that makes concrete hydrophobic – prolonging its life by reducing chloride and sulphate attack and steel-reinforcement corrosion. The innovation is based on the use of water-based, low odor, nonhazardous additives, such as salts of alkenyl-substituted succinic acid which, in addition, mean Hycrete liquid admixtures are comprised of 75% recycled materials. Mixing the waterproofing system into the concrete avoids traditional high-VOC surface applied systems. Avoidance of adhered asphalt membranes means the concrete need not be landfilled after demolition.

Silent Spring+50: What's Really Changed?

[Source: Greenbiz.com, September 4, 2012](#)

Author: Richard Liroff

Silent Spring burst into American consciousness 50 years ago this month. Despite a massive pesticide industry campaign to discredit both the book and its author, it dramatically raised public awareness about the risks of 20th century chemistry and catalyzed contemporary environmentalism. If you're moved by the sight of bald eagles, ospreys and brown pelicans -- not to mention healthy humans -- thank Rachel Carson.

Carson argued that heavy-handed pesticide use was endangering natural systems and humankind. She recognized the need for pest control but urged use of safer alternatives: "Methods [to control insects] must be such that they do not destroy us along with the insects." When she noted the average human "almost certainly starts life with the first deposit of [a] growing load of chemicals," she presciently identified the problem of prepolluted babies. Roughly 300 contaminants have now been found in babies' umbilical cords.

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