

# Greenlist Bulletin

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

September 4, 2015

## In This Issue

Missed warning signs: Why a toxic waste spill could happen again

Occupational exposure to nanomaterials: Assessing the potential for cutaneous exposure to metal oxide nanoparticles in a semiconductor facility

Toxics toolbox: A crash course on chemical management software

Bisphenol A and child and youth behaviour: Canadian Health Measures Survey 2007 to 2011

CHEM Trust in circular economy chemicals warning

Mothers Who Clean for a Living More Likely to Have Babies with Genital Defects

Health Watchdog Finds High Levels of Cancer-Causing Chemicals in the Majority of Nearly 100 E-cigarettes Tested

EPA Rules Target Hazardous Waste Management

In the future, the best chemistry practices will be green

Reducing Powder Coating Waste

[Join Our Mailing List!](#)

## Quick Links

[Greenlist Bulletin Archives](#)

[TURI Website](#)



Like us on Facebook

This is the bi-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](mailto:mary@turi.org) if you would like more information on any of the articles listed here, or if this email is not displaying properly.



## Missed warning signs: Why a toxic waste spill could happen again

[Source: The Washington Post, August 26, 2015](#)

Author: Joby Warrick

U.S. officials responsible for the Aug. 5 spill of toxic mine waste in southwestern Colorado had no plan in place for dealing with a catastrophic breach of the kind that fouled a long stretch of the state's Animas River, an internal inquiry has concluded.

No one, from the local contractor to federal overseers in Washington, saw warning signs of a dangerous build-up in water pressure inside the Gold King Mine, which discharged 3 million gallons of liquid waste when an earthen wall collapsed as cleanup work was underway, investigators said in the report released Wednesday.

[Read more...](#)

See from U.S. Environmental Protection Agency, "[Emergency Response to August 2015 Release from Gold King Mine](#)".

Occupational exposure to nanomaterials: Assessing the potential for cutaneous exposure to metal oxide nanoparticles in a semiconductor facility

This study evaluated the potential for cutaneous exposures to engineered nanometal oxides from workplace surfaces in a semiconductor research and development facility. Exposure assessment methodology captured engineered nanomaterials (ENMs) from work surfaces accessible for worker contact via the skin that were associated with chemical mechanical planarization (CMP), a polishing process utilized in semiconductor fabrication. A microvacuum approach was used to collect surface samples for morphological analysis via transmission electron microscopy (TEM) and scanning electron microscopy (SEM), both with energy-dispersive X-ray spectroscopy (EDS) for compositional analysis. Eleven surface samples were collected along the CMP lifecycle: 1 from the cleanroom ("fab") where wafer fabrication takes place, 4 from the subfab where bulk chemical delivery systems are located, and 6 from the wastewater treatment (WWT) area where CMP wastewater is treated and discharged. Engineered nanomaterials of interest (Si, Al, Ce) were found from all areas of collection, existing as particles or agglomerates (>100 nm). Results support the findings of prior research and indicate that nanomaterials utilized or generated by CMP are found on work surfaces and may be accessible for cutaneous exposure by workers in semiconductor facilities. In order to minimize and/or prevent cutaneous exposures for workers who use or handle ENMs in this industry, prudent preventive work practices should be followed, including use of personal protective equipment, hazard communication, and engineering and administrative controls.

[Read more...](#)

See from *Chemical Watch*, "[Scale back nanomaterial reporting proposals, industry tells EPA](#)".

Also see from U.S. EPA, "[Control of Nanoscale Materials under the Toxic Substances Control Act](#)".

### Toxics toolbox: A crash course on chemical management software

[Source: GreenBiz, September 4, 2015](#)

Author: Bob Kerr

Proactively adopting a sustainable chemicals management program is a company's best response to ever-increasing requirements and demands from consumers, supply chain partners and regulators.

A key challenge for firms employing this approach is accessing the necessary chemical information. Software systems designed to meet this need can save resources, support improved chemical selection for the design of safer products and allow more rapid response to changing market demands for ingredients and materials.

[Read more...](#)

### Bisphenol A and child and youth behaviour: Canadian Health Measures Survey 2007 to 2011

[Source: Statistics Canada, August 19, 2015](#)

Bisphenol A (BPA) is a synthetic industrial chemical commonly used in consumer products such as re-usable bottles, toys and plastic dinnerware, epoxy resins that coat the interior of metal food containers, and dental composites and sealants. Biomonitoring results from the Canadian Health Measures Survey (CHMS) indicate widespread exposure among children and youth, with 93% of 6- to 11-year-olds and 94% of 12- to 19-year-olds having detectable levels of urinary BPA. Although evidence is inconclusive, even low levels of BPA exposure may be associated with negative health outcomes for children, including behavioural problems. ...

This is the first large population-based analysis of associations between BPA concentration in Canadian children and youth and behavioural outcomes. It provides evidence of association between urinary BPA concentration, children's socioeconomic conditions, and their behavioural outcomes. Although cross-sectional, the findings suggest that younger children, those exposed to second-hand smoke every day or almost every day, and those in low-income households have higher urinary BPA concentrations. In addition, BPA levels were associated with hyperactivity in girls and lower prosocial behaviour in boys. Further research on Canadian children's exposure to BPA is necessary to understand the mechanisms by which it may be related to behavioural outcomes. Future studies might consider prenatal exposure in concert with childhood concentrations, other indices of child and youth well-being, and exposure to other compounds.

[Read more...](#)

## CHEM Trust in circular economy chemicals warning

[Source: Letsrecycle.com, August 25, 2015](#)

Author: Tom Goulding

CHEM Trust, a UK registered charity that works to prevent man-made chemicals from causing long term damage to wildlife or humans, has urged the Commission to weigh up the benefits of encouraging the recycling of a material, over any potential harm to the environment.

Materials that have come under scrutiny in the charity's response include black plastics, which are used in kitchen goods and could be contaminated 'with brominated flame retardents', plastic toys, furniture and construction materials.

The organisation argued that it is wrong to assume recycling is always the best option when waste contains hazardous chemicals, and that some landfill is still the safest place to dispose of some materials, such as PVC.

Its response calls on the EU to end its support of recycling products that contain 'dangerous persistent organic pollutants', which it suggests endangers high quality recycling and creates exposure to harmful chemicals.

[Read more...](#)

## Mothers Who Clean for a Living More Likely to Have Babies with Genital Defects

[Source: BuildingGreen, August 2015](#)

Author: Alana Fichman

Sons born to professional cleaners, hairdressers, and lab workers were 68% more likely to develop hypospadias, the condition of having the opening of the urethra on the underside of the penis rather than the tip. The condition can be surgically repaired, but either way, those affected can suffer ongoing urinary and sexual problems.

Researchers, with consent from parents, studied children in the South of France where greater incidents of chemical exposure were known to occur. Chemical exposures for both biological parents of 408 hypospadiac children and 302 non-hypospadiac children were studied. The study found that jobs with more frequent chemical exposure for the biological mother were more likely to result in hypospadiac sons.

Fetuses exposed to paints, solvents, or adhesives were the most likely to experience hypospadias. Detergents, pesticides, and cosmetics also showed significant impacts, along with other industrial chemicals, including metals, polycyclic aromatic hydrocarbons (PAHs), and herbicides. Of all the exposures studied, 78% occurred in the first trimester of pregnancy -- during genital differentiation.

[Read more...](#)

See original study in *European Urology*, "[Is Hypospadias Associated with Prenatal Exposure to Endocrine Disruptors? A French Collaborative Controlled Study of a Cohort of 300 Consecutive Children Without Genetic Defect](#)".

## Health Watchdog Finds High Levels of Cancer-Causing Chemicals in the Majority of Nearly 100 E-cigarettes Tested

[Source: Center for Environmental Health, September 2, 2015](#)

Oakland, CA -- The national nonprofit health watchdog Center for Environmental Health (CEH) today announced that the majority of 97 e-cigarettes and other "vaping" products tested produce high levels of the cancer-causing chemicals formaldehyde and acetaldehyde, in violation of California safety standards. The independent lab testing of products from two dozen e-cigarette makers, including RJ Reynolds (Vuse brand e-cigarettes), Imperial Tobacco/ITG Brands (blu brand), NJoy and other major companies found that 90% of the companies had at least one product that produced high levels of one or both chemicals, above the state safety limit. A test on one e-cigarette found the level of formaldehyde was more than 470 times higher than the California safety standard.

The CEH report, "A Smoking Gun: Cancer Causing Chemicals in E-cigarettes," outlines the first-

ever large sampling of actual e-cigarettes and vaping products tested simulating real-world use of the products, and demonstrating that the majority of e-cigarettes tested pose a serious cancer risk. CEH is initiating legal action against the companies producing the cancer-causing products for failing to warn consumers, as required under California's strong consumer protection law known as Proposition 65. This follows CEH's legal action earlier this year against e-cigarette makers for failing to warn consumers about risks from nicotine in e-cigarettes.

[Read more...](#)

Access report, "[A Smoking Gun: Cancer-causing chemicals in e-cigarettes](#)".

## EPA Rules Target Hazardous Waste Management

Source: [Environmental Leader, September 1, 2015](#)

The EPA yesterday proposed two new hazardous waste rules that the agency says will strengthen environmental protection while reducing regulatory burden on businesses.

One of the proposed rules aims to protect waterways, including drinking and surface water, by preventing the flushing of hazardous waste pharmaceuticals and simplify the requirements for healthcare workers. The EPA says the other rule will provide greater flexibility to industry while requiring new safeguards to protect the public from mismanagement of hazardous waste.

[Read more...](#)

See press release from U.S. EPA, "[EPA Proposes Rules to Improve Hazardous Waste Management and Better Protect our Waterways / New Rules Also Reduce Regulatory Burden on Businesses](#)".

Also see from *Environmental Leader*, "[Water Treatment for Zero Liquid Discharge, High Recovery Plants](#)".

## In the future, the best chemistry practices will be green

Source: [The Guardian, September 3, 2015](#)

Author: Bruce Watson

Chemistry is having "an innovation crisis", according to John Warner, co-author of the 12 Principles of Green Chemistry. "We need to ask if the way we're training future scientists is fitting the need of society." ...

As the long overdue revision of the Toxic Substances Control Act highlights, the US approach to making chemistry greener has mainly been conducted through regulations and restrictions.

Warner proposed a slightly different perspective: "Instead of enacting another law that bans or regulates a chemical or a molecule that has a toxic or environmentally destructive effect, we need to think about how we invent a product that doesn't have that effect."

To make that happen, he said, universities need to reconsider the way they train chemists of the future. Currently, chemical degrees don't require any classes in toxicity or environmental mechanisms, he said.

[Read more...](#)

## Reducing Powder Coating Waste

Source: [Products Finishing, May 1, 2015](#)


Author: Dave Zelch

Heavy equipment manufacturers and the tier suppliers that support them typically have firm coating specifications in place, so when it comes to choosing the right coating, quality and specification compliance are given. What differentiates the right coating from the almost right coating is its ability to improve the bottom line, reduce overall costs and meet performance requirements, without over-engineering the solution.

All coatings are not created equal. Some can withstand very high temperatures, and some are more

UV resistant. In the case of two products having matching performance characteristics and physical properties, the differentiator will always be cost, but basing decisions on price per pound or price per gallon isn't a formula for real savings. Purchasing decisions are best made when key performance and process standards are acknowledged, and true applied cost -- price per square foot covered -- is understood.

[Read more...](#)



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.

Greenlist Bulletin is compiled by:

Mary Butow  
Research and Reference Specialist  
Toxics Use Reduction Institute  
University of Massachusetts Lowell  
600 Suffolk St., Wannalancit Mills  
Lowell MA 01854-2866  
978-934-4365  
978-934-3050 (fax)  
[mary@turi.org](mailto:mary@turi.org)