

# Greenlist Bulletin

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

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## Nonlegacy PCBs: Pigment Manufacturing By-Products Get a Second Look

[Source: Environmental Health Perspectives, March 1, 2013](#)

Author: Elizabeth Grossman

Polychlorinated biphenyls (PCBs) were commercially manufactured in the United States from about 1930 until 1979, when their production was banned under the Toxic Substances Control Act (TSCA) because of concerns about their extreme environmental persistence, ability to bioaccumulate, and adverse human health effects. PCBs were used in numerous industrial and consumer applications, most notably as insulation fluids in electrical transformers and generators but also in products including fluorescent lamp ballasts, caulk, and carbonless copy paper. These now-discontinued manufactured chemicals have received a great deal of attention in terms of research and environmental remediation. But other, lesser-known PCBs continue to be generated and released into the environment, not from intentionally created commercial products but as unintentional by-products of manufacturing processes including, according to recent studies, those used to make certain pigments used in dyes, inks, and paints. . . .

Unintentionally produced PCBs were known to be present in inks and dyes when the U.S. Environmental Protection Agency (EPA) announced the final rule barring commercial PCB production in 1979. A rule allowing exemptions for PCBs in controlled manufacturing processes and as unintentional contaminants was promulgated under TSCA a few years later. This rule allowed for PCB concentrations of up to 50 ppm in certain products as a result of manufacturing processes.

Recently, manufacturing by-product PCBs have been identified in wastewater, sediments, and air in numerous locations. They have also been positively identified in testing of new products colored with such pigments, so it is clear these PCBs are not occurring as a result of legacy commercial mixtures. What is emerging is an increasingly complex picture of the prevalence of nonlegacy PCBs alongside the persisting environmental

presence of legacy PCBs, and a concurrent and likewise complex picture of how PCBs can affect human health at very low levels of exposure.

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## Posh Platinum

[Source: Innovation, December 2012/January 2013, Volume 10, No. 6](#)

Author: Karen McNulty Walsh

Stop-and-go driving can wear on your nerves, but it really does a number on the precious platinum that drives reactions in automotive fuel cells. Before large fleets of fuel-cell-powered vehicles can hit the road, scientists will have to find a way to protect the platinum, the most expensive component of fuel-cell technology, and to reduce the amount needed to make catalytically active electrodes.

Several years ago, scientists at Brookhaven National Laboratory led by Senior Chemist Radoslav Adzic developed a new electrocatalyst that uses a single layer of platinum and minimizes its wear and tear while maintaining high levels of reactivity during tests that mimic stop-and-go driving. The research may greatly enhance the practicality of fuel-cell vehicles and may also be applicable for improving the performance of other metallic catalysts.

The newly designed catalysts are composed of a single layer of platinum over a palladium (or palladium-gold alloy) nanoparticle core. Their structural characterization was performed at Brookhaven's Center for Functional Nanomaterials and the National Synchrotron Light Source.

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## Contaminated diet contributes to phthalate and bisphenol A exposure

[Source: University of Washington, February 27, 2013](#)

Author: Elizabeth Sharpe

While water bottles may tout BPA-free labels and personal care products declare phthalates not among their ingredients, these assurances may not be enough. According to a study published February 27 in the *Nature Journal of Exposure Science and Environmental Epidemiology*, we may be exposed to these chemicals in our diet, even if our diet is organic and we prepare, cook, and store foods in non-plastic containers. Children may be most vulnerable. . . .

The researchers compared the chemical exposures of 10 families, half of whom were given written instructions on how to reduce phthalate and BPA exposures. They received handouts prepared by the national Pediatric Environmental Health Specialty Units, a network of experts on environmentally related health effects in children. The other families received a five-day catered diet of local, fresh, organic food that was not prepared, cooked or stored in plastic containers.

When the researchers tested the participants' urinary concentrations of metabolites for phthalates and BPA, they got surprising results. The researchers expected the levels of the metabolites to decrease in those adults and children eating the catered diet.

Instead, the opposite happened. The urinary concentration for phthalates were 100-fold higher than the those levels found in the majority of the general population. The comparison comes from a study conducted by the National Health and Nutrition Examination Survey. This is a program of studies managed by the Centers for Disease Control and Prevention and designed to assess the health and nutritional status of adults and children in the United States.

[Read more...](#)

Read article in *Nature Journal of Exposure Science and Environmental Epidemiology*, ["Unexpected results in a randomized dietary trial to reduce phthalate and bisphenol A exposures."](#)

Read about how ["Ants Absorb Detectable Levels of Phthalates"](#) in *Environmental Building News*.

## Phthalate-free tubing for food and beverage applications

[Source: Chemical Engineering, February 1, 2013](#)

Tygon S3 (safe, smart and sustainable) is said to be the first bio-based and phthalate-free tubing, and is the next generation of flexible tubing from this company for food and beverage manufacturers. Tygon S3 complies with FDA, NSF and 3-A requirements for food-and-beverage applications, as well as with Japan Food Sanitation Law # 370/1959. It also complies with European regulations (10/2011/EU) for many food-and-beverage applications when used as instructed. Tygon S3 uses a bio-based plasticizer instead of phthalates to provide "exceptional durability and longevity," says the company. - *Saint-Gobain Performance Plastics, Akron, Ohio*

### Higher levels of several toxic metals found in children with autism

[Source: Arizona State University, February 25, 2013](#)

Author: Joe Kullman

In a recently published study in the journal *Biological Trace Element Research*, Arizona State University researchers report that children with autism had higher levels of several toxic metals in their blood and urine compared to typical children. The study involved 55 children with autism ages five to 16 years old compared to 44 controls of similar age and gender.

The autism group had significantly higher levels of lead in their red blood cells (+41 percent) and significantly higher urinary levels of lead (+74 percent), thallium (+77 percent), tin (+115 percent), and tungsten (+44 percent). Lead, thallium, tin, and tungsten are toxic metals that can impair brain development and function, and also interfere with the normal functioning of other body organs and systems.

[Read more...](#)

Read article in *Biological Trace Element Research*, "[Toxicological Status of Children with Autism vs. Neurotypical Children and the Association with Autism Severity.](#)"

### Cool Strategies for Cooling: Bringing Ancient Air Conditioning Strategies Into The 21st Century

[Source: Innovation, December 2012/January 2013, Volume 10, No. 6](#)

Author: Bill Scanlon

Researchers at the National Renewable Energy Laboratory credit ancient architecture and developing world cooling strategies for their outside-the-box thinking that led to an air cooler that just might revolutionize air conditioning. NREL's Desiccant Enhanced Evaporative (DEVAP) system won an R&D 100 Award this year.

The idea was born when Ron Judkoff was a young Peace Corps volunteer in Kedougou, Senegal, one of the warmest places on Earth. "That's where I really saw the effectiveness of evaporative cooling," said Judkoff, principal program manager for building technologies at NREL.

"The Senegalese would make these clay pots to keep water in," he recalled. "The pots didn't feel wet on the outside, but they were semi-permeable. There was enough porosity in the clay that there was evaporation taking place. You could take a nice drink of cold water - and the water would stay cold in the pot."

That semi-porous clay operated in a similar way as the high-tech membranes operate in NREL's DEVAP system. DEVAP works in any climate and achieves comfortable cooling while saving 40 percent to 80 percent of the energy use of a conventional air-conditioning system.

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