

Pioneering Work In Bio-based Toners

Non-profit research and development organization [Battelle](#) [1] has announced that its development of bio-based toners and resins has earned a 2008 Presidential Green Chemistry Award from the EPA. The award was presented to the company and Bhima Vijayendran (pictured left) at the 2008 Presidential Green Chemistry Challenge Awards ceremony in Washington, D.C. The EPA's Presidential Green Chemistry Challenge promotes research to develop less toxic alternatives to existing technologies, and to reduce or eliminate waste generated from industrial production. An independent panel of technical experts convened by the American Chemical Society selected the winners from nearly 100 nominations for this recognition. More than 200,000 tons of petroleum-derived electrostatic dry toners and resins are used annually in the U.S. to make 3 trillion copies in photocopiers and printers. The biggest environmental problem with conventional toners is the difficulty with which these inks are removed from the paper during recycling. With early-stage funding from the Ohio Soybean Council, Battelle's novel method uses soy oil and protein, along with carbohydrates from corn, as its chemical feedstock. The incorporation of chemical groups susceptible to breaking down during the standard de-inking process furthermore allowed the company to develop new bio-based inks that are significantly easier to remove from the paper fiber. The company feels that the result is a higher quality of recovered material and streamlining of the recycling process. A preliminary life-cycle analysis shows significant energy savings and reduced carbon dioxide emission in the full value chain, according to the company. With an expected 25 percent market penetration by 2010, Battelle estimates this technology could save 9.25 trillion British thermal units per year and eliminate more than 360,000 tons of CO₂ emissions per year. In 2006, technology licensee Advanced Image Resources successfully scaled up production to manufacture resin and toner that is compatible with current hardware. The new toner will be sold under BioRez® and Rezilution® trade names.

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<http://www.chem.info/news/2008/08/pioneering-work-bio-based-toners>

Links:

[1] <http://www.battelle.org/>