

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.



Funding to develop predictors of human body toxics

[Source: U.S. Environmental Protection Agency, October 4, 2012](#)

SAN FRANCISCO -- The U.S. Environmental Protection Agency today awarded a five-year contract, worth up to \$46.7 million, to the South San Francisco, California-based company BioSeek for research to evaluate the potential human health effects of environmental chemicals, pesticides, failed pharmaceuticals, and nanomaterials, among other substances.

Using its rapid and cost-effective proprietary technology, BioSeek will analyze up to 60,000 substance samples to determine the potential toxicity effects on the human body. Rather than testing substances on animals, tests will be conducted on extracted human cell cultures in its laboratory.

EPA intends to use BioSeek's findings to screen thousands of chemicals to see if they require additional investigation.

Work is being performed by BioSeek under U.S. EPA's ToxCast program, which seeks to verify "toxicity signatures" of substances, such as environmental chemicals, and catalog them to help predict adverse effects these chemicals would have on the human body.

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Soy-Based Surface Active Copolymers As a Safer Replacement for Low Molecular Weight Surfactants

[Source: ACS Sustainable Chemistry & Engineering, October 4, 2012](#)

Environmentally friendly soybean-based polymeric surfactants (SBPS) were synthesized using cationic polymerization of a vinyl ether monomer derived from soybean and tri(ethylene glycol) ethyl vinyl ether. The ability of SBPS to form micelles that solubilize hydrophobic molecules has been shown. Micellar "capacity" (size of micellar interior) increased with increasing polymeric

surfactant concentration and temperature. The obtained results provide evidence for potential use of SBPS as a safer replacement for low molecular weight surfactants in the solubilization of poorly soluble ingredients in cosmetics. The macromolecules developed can be used as both a surface active agent and an additive that enhances the surface activity of low molecular weight surfactants (for example, anionic sodium lauryl sulfate) in personal-care products.

Please contact TURI if you are interested in this article.

Acetone–Heptane as a Solvent System for Combining Chromatography on Silica Gel with Solvent Recycling

[Source: ACS Sustainable Chemistry & Engineering, August 29, 2012](#)

Solvents used in chromatographic purification of intermediates and products are a major source of waste and expense in synthetic research and synthetic processes. The ethyl acetate-hexane mixtures most commonly used for flash chromatography on silica gel are not readily separable by distillation due to their similar boiling points and azeotrope formation. Potential solvents for chromatography that are more amenable to separation and recovery by distillation were thus explored. Acetone-heptane mixtures were found to be convenient and sufficiently separable for routine use and recovery for organic separations. The greater elutropic strength and especially the transparent short-wavelength UV window of acetone provide additional advantages over the commonly used ethyl acetate. The recycling of solvents from chromatography can greatly reduce the volume of waste generated by synthetic laboratories while also reducing operating costs.

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How California is harnessing P2 to make safer products

[Source: GreenBiz.com, October 9, 2012](#)

Author: Debbie Raphael

Twenty-two years ago, the Pollution Prevention Act marked a significant change in how U.S. companies manage hazardous waste. Shifting away from an "end of the pipe" approach to controlling chemical hazards, it focused on controlling those hazards at their source and marked a major change in how we think about protecting our health and preserving the environment. . . .

The regulation takes pollution prevention to a higher level. P2 programs well understood that finding safer alternatives for the toxic chemicals in our products provides a long-lasting sustainable approach to environmental protection. Instead of reducing the use of chemicals that threaten our health and contaminate our environment, our new approach mandates the rethinking of ingredients during the design phase of a product. That mandate is a fundamental change in the way the department regulates toxics in consumer products.

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New App Serves as Water Pollution Detector

[Source: Environmental News Network, October 11, 2012](#)

The popular Waze smartphone navigation app recently introduced a new feature - a water pollution detector. The feature aims to tell users if the lake or river they pass by or intend on swimming in while hiking or camping across Israel, suffers from pollution.

The feature is the brainchild of the app's architects and Zalul Environmental Association, which is dedicated to the protection and preservation of Israel's seas, rivers and lakes.

WAZE users passing by a polluted waterway see a pop-up window on their smartphones' screens, telling them it is polluted and naming the parties known to be responsible for the pollution.

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Clean Water Act and Pollutant Total Maximum Daily Loads (TMDLs)


[Source: Congressional Research Service, September 21, 2012](#)

Author: Claudia Copeland

Section 303(d) of the Clean Water Act (CWA) requires states to identify waters that are impaired by pollution, even after application of pollution controls. For those waters, states must establish a total maximum daily load (TMDL) of pollutants to ensure that water quality standards can be attained. A TMDL is both a quantitative assessment of pollution sources and pollutant reductions needed to restore and protect U.S. waters and a planning process for attaining water quality standards. Implementation of Section 303(d) was dormant until states and the Environmental Protection Agency (EPA) were prodded by lawsuits. The program has been controversial, in part because of requirements and costs faced by states to implement this 40-year-old provision of the law, as well as industries, cities, farmers, and others who may be required to use new pollution controls to meet TMDL requirements.

Despite controversies, the TMDL program has become a core element of overall efforts to protect and restore water quality. States and EPA develop several thousand TMDLs annually, but many more need to be completed. The most recent information indicates that over 41,000 water bodies do not meet water quality standards and need a TMDL to initiate corrective measures. The 303(d) program has evolved, and especially during the last decade, EPA and states have addressed more complex issues, including TMDLs involving both point (direct discharges) and nonpoint sources (diffuse discharges) such as stormwater; TMDLs for less-traditional causes of impairment such as ocean acidification and climate change; TMDLs for pollutants such as mercury that involve coordination among water, air, and other environmental programs; and multi-jurisdictional TMDLs.

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