

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.

## **REACH is the dominant driver for substitution - more action is needed**

[Source: European Chemicals Agency, September 2016](#)

Regulations are critical drivers for industry to substitute hazardous chemicals in Europe according to a study conducted by Joel Tickner and Molly Jacobs from the University of Massachusetts, Lowell Centre for Sustainable Production. The study, commissioned by ECHA, states that the biggest hindrances are limited staff and other resources focusing on substitution, ignorance on safer alternatives and limited information in the supply chains. ...

More government facilitated innovation research, public-private partnership, more detailed guidance and technical support will also be needed to ensure successful substitution. These investments need to be coupled with enhanced inter-authority and stakeholder collaboration on substitution and the development of expert networks that can support industry and authorities.

[Read more...](#)

See the August 2016 report, '[Improving the Identification, Evaluation, Adoption and Development of Safer Alternatives: Needs and Opportunities to Enhance Substitution Efforts within the Context of REACH](#)'.

### **In This Issue**

**[REACH is the dominant driver for substitution - more action is needed](#)**

**[FDA bans antibacterials in consumer soaps](#)**

**[CalEnviroScreen 3.0 Draft](#)**

**[Call for evidence on hazardous substances used in tattoo inks or permanent make-up](#)**

**[EPA Bans Mercury Compounds Under Reformed Toxic Substances Control Act](#)**

**[Have biomaterials reached a tipping point?](#)**

**[Environmentally Friendly Coatings: Historical Perspectives and Future Outlook](#)**

**[Hawaii targets sunscreens with oxybenzone](#)**

**[High-Solids Reactive Oligomers Derived from Soybean Oil](#)**

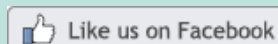
**[A one-step, phosgene-free route to urethane](#)**

[Join Our Mailing List](#)

### **Quick Links**

[Greenlist Bulletin Archives](#)

[TURI Website](#)



## **FDA bans antibacterials in consumer soaps**

[Source: Chemical & Engineering News, September 8, 2016](#)

Author: Britt E. Erickson

As of next year, companies will no longer be allowed to sell hand and body soaps in the U.S. that contain certain antibacterial ingredients, including triclosan and triclocarban.

In a final rule issued on Sept. 2, the Food & Drug Administration says that manufacturers have not shown that the chemicals are safe for long-term daily use. Companies also haven't shown that the chemicals are more effective than washing with regular soap and water to prevent the spread of germs, FDA says.

"Some data suggest that antibacterial ingredients may do more harm than good over the long term," says Janet Woodcock, director of FDA's Center for Drug Evaluation & Research. FDA proposed the rule in late 2013, citing concerns about potential hormonal effects and antibiotic resistance associated with the chemicals.

The rule goes into effect on Sept. 6, 2017, but many manufacturers have already stopped using the ingredients. As alternatives, most have switched to one of three other antibacterial chemicals: benzalkonium chloride, benzethonium chloride, and chloroxylenol. At the request of manufacturers, FDA deferred from including these three compounds in the new rule.

[Read more...](#)

See press release from the U.S. FDA, "[FDA issues final rule on safety and effectiveness of antibacterial soaps](#)". Also see from the FDA, "[Antibacterial Soap? You Can Skip It -- Use Plain Soap and Water](#)".

Also see from NPR, "[Do You Really Need Antimicrobials In Your Soap?](#)".

---

## **CalEnviroScreen 3.0 Draft**

[Source: CA Office of Environmental Health Hazard Assessment, September 6, 2016](#)

The Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA), announces the availability of the draft of the latest version of the California Communities Environmental Health Screening Tool: CalEnviroScreen 3.0.

CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. This draft updates CalEnviroScreen 2.0 in a variety of ways.

[Read more...](#)

The [next webinar](#) from CA OEHHA on this tool is set to be held Wednesday, September 28, 2016, 11:00AM-12:00PM PT.

Also see from CA OEHHA, "[Notice of Adoption of Inhalation Cancer Unit Risk Factor for Perchloroethylene](#)", and "[Prioritization 2016: Chemicals for Consultation by the Carcinogen Identification Committee](#)".

---

## **Call for evidence on hazardous substances used in tattoo inks or permanent make-up**

[Source: European Chemicals Agency, August 31, 2016](#)

Helsinki, 31 August 2016 -- Tattoo inks and permanent make-up may contain hazardous substances -- for example, substances that cause skin allergies, cancer or other adverse effects on health. Thanks to the EU cosmetics legislation many hazardous substances are not allowed to be used in cosmetic products but they are not prevented in tattoo inks or permanent make-up. The European Commission has, therefore, asked ECHA to assess the risks to human health of the use of these substances in tattoo inks and permanent make-up and to examine the need for an EU-wide restriction.

ECHA calls for information on tonnages, release and exposure of hazardous substances used in tattoo inks and permanent make-up, and also the costs of tattoo and make-up inks and of permanent make-up and tattooing services. ECHA is also interested in issues related to enforceability of possible restrictions and alternatives to the hazardous substances used in tattoo inks and permanent make-up, their hazard or risk profile, technical characteristics and costs. The information requested will be additional to that published in the recent reports by the European Commission's Directorate-General Joint Research Centre.

[Read more...](#)

See previously featured article in *Chemical & Engineering News*, "[What chemicals are in your tattoo?](#)".

---

## **EPA Bans Mercury Compounds Under Reformed Toxic Substances Control Act**

*Source: [Environmental Leader, September 1, 2016](#)*

*Author: Jessica Lyons Hardcastle*

The EPA is banning exports of five mercury compounds, effective Jan. 1, 2020, under the reformed Toxic Substances Control Act.

An EPA notice published in the Federal Register lists the five mercury compounds: mercury (I) chloride or calomel; mercury (II) oxide; mercury (II) sulfate; mercury (II) nitrate; and cinnabar or mercury sulphide.

Mercury (I) chloride, a chemical produced by gold mining air pollution processes, is the most produced of these compounds, with volumes exceeding 25 metric tons per year, the EPA said in a 2009 report to Congress. It's also the chief mercury compound that is used as a source of elemental mercury -- a toxic substance commonly used in thermometers, batteries, lamps, industrial processes, refining, and lubrication oils.

[Read more...](#)

---

## **Have biomaterials reached a tipping point?**

*Source: [GreenBiz, August 31, 2016](#)*

*Author: Mike Hower*

The untapped potential for biotechnology to solve myriad sustainability challenges is drawing the attention of forward-thinking companies across industries. Today, over \$400 billion worth of conventional manufacturing products are produced each year using biomass, according to ... Duke University's Center for Sustainability & Commerce.

While biofuels have garnered much of the spotlight, bio-based alternatives to plastic and other fossil-based materials quickly are making their way to the mainstream. These materials can be used for a variety of applications in manufacturing, construction, apparel and more. But many bio-based materials have yet to reach scale, thanks to industry clinging to classic chemistry.

This is beginning to change, as breakthroughs in bio-based materials engineering reach a tipping point. Collective understanding of how microbes work is, for the first time, allowing us to make chemicals in a safer and more environmentally friendly way. It is possible for us to engineer microbes to have specific functions, including a variety of sustainability applications.

[Read more...](#)

See July 2014 report, "[Why Biobased? Opportunities in the Emerging Bioeconomy](#)".

## **Environmentally Friendly Coatings: Historical Perspectives and Future Outlook**

*Source: [Paint and Coatings Industry, September 1, 2016](#)*

Author: Kurt G. Olson

... Indeed, coatings technologists have enabled great strides in the reduction of pollution and the conservation of energy in the recent past. However, much work remains to be done. Some of the planet's most challenging issues will be impacted by coatings technology in the future. Coated filtration membranes will purify polluted water and separate carbon dioxide from air. Coatings will protect and reduce spoilage of food. Future improvements in corrosion protection will increase the longevity of expensive assets and reduce pollution resulting from the failure of pipes carrying oil and other chemical feedstocks. This article will detail the progress made to date and the future challenges in coatings science.

[Read more...](#)

## **Hawaii targets sunscreens with oxybenzone**

*Source: [Chemical & Engineering News, September 8, 2016](#)*

Author: Cheryl Hogue

To protect fragile coral reefs, Hawaii's government is asking swimmers, surfers, and divers to avoid using sunscreens that contain the widely used ultraviolet light filter oxybenzone.

The state cites a recent study linking the chemical to deformities in the larvae of coral and associating oxybenzone exposure with an increase in the rate of coral bleaching... . In the bleaching process, symbiotic algae, which provide food and color to coral, leave stressed coral cells.

In the study, researchers led by Craig Downs, a cell and molecular biologist who directs the nonprofit Haereticus Environmental Laboratory, found oxybenzone could start harming coral at concentrations as low as 0.062 µg/L. They measured oxybenzone levels in Hawaiian waters ranging from 0.8 to 19.2 µg/L.

In light of these findings, Hawaii is asking people entering the ocean surrounding its islands not to use sunscreens containing oxybenzone.

[Read more...](#)

## **High-Solids Reactive Oligomers Derived from Soybean Oil**

*Source: [Paint and Coatings Industry, May 1, 2016](#)*

Authors: Ramanathan S. Lalgudi, Rob J. Cain and Mark J. Perry, Barry L. McGraw, and

In the United States, over 300 billion beer, beverage and food cans are coated with half a million metric tons of Bisphenol-A (BPA)-containing epoxy resins each year, and the global market is more than twice that large. Although there are currently no U.S. Food and Drug Administration (FDA) or other U.S. regulatory restrictions on the use of BPA-based resins in most food containers, BPA-related health hazards have been recognized by regulators, policymakers and consumers. BPA is banned from use in applications such as infant feeding plastic bottles, and California recently listed BPA as a hazardous chemical. ...

Oleoresins (derived from oxidative drying of natural oils) were used as can coatings before the emergence of BPA resin. The latter's dominance is due to its faster cure speed, excellent corrosion performance and lower cost. The recognized health hazards with BPA resin have led many can coaters to revisit oleoresins; however, slower kinetics of the oxidative drying do not work with current high-speed can coating operations. Metallic driers cannot be used to accelerate the cure speed, as they are not permitted for food-contact use. The resins derived from epoxy, hydroxyl or carboxyl derivatives of natural oil have been studied as alternatives to BPA resin, but they do not have adequate corrosion and acid resistance, mainly because of the presence of an open micelle structure in the cured coating.

Recent developments introduced as BPA substitutes are still epoxy-based resins; they are derived from a BPA-like structure and use the oxirane ring for the resin cure.

[Read more...](#)

## A one-step, phosgene-free route to urethane

*Source: [Chemical Engineering, January 1, 2015](#)*

Researchers at the National Institute of Advanced Industrial Science and Technologys (AIST) Interdisciplinary Research Center for Catalytic Chemistry ... have developed a new reaction process to synthesize aromatic urethane -- a promising starting material for the production of polyurethanes. Unlike traditional urethane routes, no phosgene is required. The process is a one-step reaction in which an amine is reacted with a tin-alkoxide compound and pressurized CO<sub>2</sub>. Yields as large as 82% have been achieved by reacting aniline and dibutyltin dimethoxide (mole ratio of 1:5) for 20 min at 150°C, using a CO<sub>2</sub> pressure of 5 MPa. A 49% yield was found using 2,4-diaminotoluene -- the precursor for polyurethanes. After the reaction, the tin compound could be recovered and reused after treatment with an alcohol. The group plans to enhance the efficiency, and scale up the process to realize industrial applications.

[Read more...](#)

*Greenlist Bulletin is compiled by:  
Mary Butow  
Research and Reference Specialist  
Toxics Use Reduction Institute  
University of Massachusetts Lowell  
600 Suffolk Street, Wannalancit Mills Suite 501  
Lowell, MA 01854-2866  
978-934-4365  
978-934-3050 (fax)  
mary@turi.org*