

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](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.

## Wheat straw waste could be basis for greener chemicals

*Source: Horizon - The EU Research & Innovation Magazine, October 10, 2017*

Author: Steve Gillman

The straw leftover from harvested wheat could be turned into bio-based chemicals that offer high greenhouse gas savings and do not compete with food supplies or damage ecosystems.

Researchers are hoping to use the huge amounts of wheat straw currently left to rot on European farms to develop the building blocks for greener biochemicals.

The wheat stalks left behind after harvesting cannot be eaten by animals so are normally used as bedding for livestock or left on fields as a way to enrich the soil.

But the OPTISOChem project, funded by the EU's Bio-based Industries Joint Undertaking Programme, is hoping to transform this excess material into something more useful -- a gas called bio-isobutene.

'Wheat straw is the most important type of agriculture residue in the EU -- about 144 million tonnes accumulate each year,' said Bernard Chaud, director of industrial strategy at Global Bioenergies, in France.

Sugars found in the wheat straw are fermented and turned into a gas at a biorefinery, where bio-isobutene can then be extracted and in turn can be

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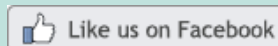
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## New from TURI

**Toxics Use Reduction and Resource Conservation: Competitiveness Impacts**

used to create biochemicals. These can then replace fossil fuel-based chemicals that are used to make many plastics, paints, tyres, lubricants, adhesives and sealants.

[Read more...](#)

Also see from the European Commission, "[Green chemistry' for pharmaceuticals](#)".

## for Massachusetts Businesses

New research and analysis from TURI demonstrates the economic benefits of toxics use reduction for a cross section of Massachusetts companies.

Download the report [here](#).

## Exposure to environmental chemicals is an important risk factor for breast cancer

[Source: Silent Spring Institute, October 10, 2017](#)

Exposure to environmental chemicals, especially early in life, is an important contributing factor in the development of breast cancer, according to the most comprehensive review of human studies to date. The findings could help inform prevention strategies aimed at reducing the incidence of the disease, as rates continue to increase worldwide.

In 2007, researchers from Silent Spring Institute published in the journal *Cancer* a landmark state-of-the-science review on the link between environmental chemicals and breast cancer. The review identified 216 chemicals that cause mammary tumors in animals and provided a roadmap for studying these chemicals in humans. "That was a real wakeup call," says Dr. Julia Brody, Silent Spring's executive director and senior scientist. "Now, ten years later, we see the evidence is even stronger."

Since the first review, hundreds of studies have been published on environmental chemicals and breast cancer. To capture and synthesize the human evidence, Brody and her team conducted a systematic search of the literature and identified 158 epidemiology studies published between 2006 and 2016. The researchers critically reviewed each study in light of emerging science on the biology underlying breast cancer, such as the influence of genes and hormones on the development of the disease.

[Read more...](#)

See article in *Environmental Research*, "[Environmental chemicals and breast cancer: An updated review of epidemiological literature informed by biological mechanisms](#)".

## WA State Dept of Ecology: Children's Safe Products Reporting Rule: Chemicals of High Concern to Children Proposed for Addition or Delisting during the 2017 Rule Update

[Source: Washington State - Department of Ecology, September 2017](#)

The proposed CSPA Reporting Rule published on March 22, 2017 identified 21 chemicals to be added as CHCCs in Section 130 of the rule. The first section of this report includes the evaluations for those chemicals. Three existing CHCCs were proposed for delisting from the CHCC list -- those evaluations are located at the end of this document.

Access the report, "[Children's Safe Products Reporting Rule - Chemicals of High Concern to Children Added or Delisted during the 2017 Rule Update](#)".

## Database Updated

[Source: Northeast Waste Management Officials' Association, October 12, 2017](#)

IC2 has made some needed repairs to the IC2 Chemicals Policy Database and began updating it with chemicals policies enacted from 2015 to 2017. The Database covers 9 policy categories, 13 product types, and dozens of chemicals and includes policies enacted from 1957 to the present. For each policy listed, the Database provides a citation, brief description, the policy's category, the product types addressed by the policy, and, in most cases an attached copy of the full text of the policy. In addition to state laws, the Database includes state-level executive orders and local (e.g., municipal) policies. IC2 staff welcome contributions of additional policies that should be included; contact [support@theic2.org](mailto:support@theic2.org).

Access the database [here](#).

## DowDuPont, Chemours named in GenX lawsuit

[Source: Chemical & Engineering News, October 10, 2017](#)

Author: Marc S. Reisch

Lawyers have filed a class-action lawsuit charging Chemours and its former parent DowDuPont with contaminating drinking water in Wilmington, N.C., with the fluoropolymer processing aid GenX. The suit follows a furor in the spring over the chemical's release from a Chemours plant. ...

GenX was developed as a safer alternative to the fluorinated surfactants used for years at the Fayetteville plant to make Teflon fluoropolymers. A six-carbon fluorinated compound, GenX replaced two eight-carbon molecules, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS).

According to the lawsuit, DowDuPont submitted documents to the U.S. Environmental Protection Agency that "indicate that GenX has been associated with increased risk of health effects in laboratory animal studies."

The suit also claims that levels of GenX in Wilmington's drinking water reached as high as 720 parts per trillion in June. The North Carolina Department of Health & Human Services set an upper limit of 140 ppt for GenX in drinking water in July. EPA guidelines call for no more than 70 ppt of PFOA or PFOS in drinking water.

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## Bjorn Hansen: regulating chemicals in recycled materials a 'key Echa challenge'

[Source: European Chemicals Agency, October 12, 2017](#)

Author: Clelia Oziel

The decision to have different regulations for chemicals in recycled materials than for chemicals in primary products is a key challenge for the circular economy, according to Echa's newly appointed head.

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## Can Toxicokinetic and Toxicodynamic Modeling Be Used to Understand and Predict Synergistic Interactions between

## Chemicals?

Source: *Environmental Science & Technology*, September 13, 2017

Authors: Nina Cedergreen, Kristoffer Dalhoff, Dan Li, Michele Gottardi, and Andreas C. Kretschmann

Some chemicals are known to enhance the effect of other chemicals beyond what can be predicted with standard mixture models, such as concentration addition and independent action. These chemicals are called synergists. Up until now, no models exist that can predict the joint effect of mixtures including synergists. The aim of the present study is to develop a mechanistic toxicokinetic (TK) and toxicodynamic (TD) model for the synergistic mixture of the azole fungicide, propiconazole (the synergist), and the insecticide,  $\alpha$ -cypermethrin, on the mortality of the crustacean *Daphnia magna*. The study tests the hypothesis that the mechanism of synergy is the azole decreasing the biotransformation rate of  $\alpha$ -cypermethrin and validates the predictive ability of the model on another azole with a different potency: prochloraz. The study showed that the synergistic potential of azoles could be explained by their effect on the biotransformation rate but that this effect could only partly be explained by the effect of the two azoles on cytochrome P450 activity, measured on *D. magna* in vivo. TKTD models of interacting mixtures seem to be a promising tool to test mechanisms of interactions between chemicals. Their predictive ability is, however, still uncertain.

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