Greenlist Bulletin

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

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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 if you would like more information on any of the articles listed here, or if this email is not displaying properly.

EPA Proposes Rule to Protect Consumers from Harmful Chemicals Found in Homes and Schools

Source: United States Environmental Protection Agency, January 8, 2015

WASHINGTON -- [Today], EPA is taking action to protect consumers from new uses and imports of the harmful chemicals Toluene Diisocyanates (TDI).

These chemicals are currently widely used in residual amounts in the production of polyurethanes and consumer products, such as coatings, elastomers, adhesives, and sealants and can be found in products used in and around homes or schools. Diisocyanates are well known dermal and inhalation sensitizers in the workplace and can cause asthma, lung damage, and in severe cases, death.

The proposed decision would give EPA the opportunity to evaluate the use of, and if necessary, to take action to prohibit or limit all products containing over 0.1 percent of the chemical including imported products that make their way into the United States.

Read more...

See article in *PaintSquare*, "EPA Proposes New TDI Limits".

Also see from US EPA, "EPA's Actions to Restrict PFOA and Similar Chemicals Yield Significant Human Health and Environmental Benefits" and "EPA Releases 2013 Toxics Release Inventory National Analysis".

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Draft rule to protect Mainers from phthalates weakened by state DEP

Source: *Portland Press Herald*, January 16, 2015
Author: Colin Woodard

Gov. Paul LePage's administration has endorsed a substantially weakened draft of a rule requiring manufacturers to reveal which products contain any of four plastic softening agents believed to harm fetuses and children.

The state Department of Environmental Protection has decided to recommend adding the four phthalates to a list of five other substances regulated under the state's Kid Safe Products Act, a 2008 law designed to protect children and fetuses from harmful chemicals in consumer products. The names of products that include a listed chemical are to be disclosed to the state and posted to an Internet database. Only two other states -- Washington and California -- have created such a system.

The four phthalates under consideration can be used in a wide range of consumer products sold in Maine, including shampoos, garden hoses and plastic bottles, and have been linked to a range of adverse health effects, particularly to fetuses, because they disrupt the production of key human hormones.

Read more...

See Maine DEP rulemaking update, "Chapter 888: Designation of Four Members of The Chemicals Class Phthalates as Priority Chemicals".

Art and Craft Safety Guide

Source: U.S. Consumer Product Safety Commission, July 30, 2012

This guide contains three sections. Section I is a general guide for the use of art and craft supplies with children. Section II is an overview of the potential hazards associated with art and craft materials and provides applicable safety and first-aid information. Section III has more detailed information about specific art and craft disciplines and associated materials. A glossary at the end of this guide provides definitions of terms. Anyone using art or craft materials will find this information beneficial; however, note that local, state, and federal agencies, such as the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA) may require procedures that are more stringent for paid employees than for hobbyists. Whenever possible, this guide directs professionals to other sources of information about requirements that may supersede the recommendations presented here.

Access U.S. CPSC Art and Craft Safety Guide here.

Also see "Forget Toxic Chemicals: These Arts and Crafts Paints Are Made From Plants" and California's OEHHA October 2014 publication, "Art and Craft Materials in Schools: Guidelines for Purchasing and Safe Use".

TURI's Note: For additional specific information and informative videos on several different types of hazards artists may encounter, see our recently released Library Guide, "Health and Safety Considerations in the Arts".

Most types of cancer not due to "bad luck" - IARC responds to scientific article claiming that environmental and lifestyle factors account for less than one third of cancers

Source: International Agency for Research on Cancer, January 13, 2015

Lyon, France, 13 January 2015 -- The International Agency for Research on Cancer (IARC), the World Health Organization's specialized cancer agency, strongly disagrees with the conclusion of a

scientific report on the causes of human cancer published in the journal *Science* on 2 January 2015 by Dr. Cristian Tomasetti and Dr. Bert Vogelstein.

The study, which has received widespread media coverage, compares the number of lifetime stem cell divisions across a wide range of tissues with lifetime cancer risk and suggests that random mutations (or "bad luck") are "the major contributors to cancer overall, often more important than either hereditary or external environmental factors."

For many cancers, the authors argue for a greater focus on the early detection of the disease rather than on prevention of its occurrence. If misinterpreted, this position could have serious negative consequences from both cancer research and public health perspectives.

IARC experts point to a serious contradiction with the extensive body of epidemiological evidence as well as a number of methodological limitations and biases in the analysis presented in the report.

Read more...

See original study in *Science*, "Variation in cancer risk among tissues can be explained by the number of stem cell divisions".

REACH 2018 Roadmap published

Source: European Chemicals Agency, January 14, 2015

Helsinki, 14 January 2015 -- For the last REACH registration deadline, ECHA is expecting a significantly larger amount of small and medium-sized enterprises to register for the first time. Large companies may also have hundreds of chemicals in their portfolios to register.

To support all, ECHA has prepared a detailed plan called the REACH 2018 Roadmap, in close consultation with its stakeholders. The roadmap describes the different milestones and support services that ECHA plans to give to the registrants from now until the deadline.

Similarly to the REACH 2018 web pages published in October 2014, the REACH 2018 Roadmap is based on the seven phases of a successful registration process. For each phase, the relevant milestones and an estimated timing for them is presented. ECHA invites all stakeholders to complement ECHA's actions to make sure that registrants are given the widest possible support network. ECHA is also constantly monitoring the progress in order to react in time if new obstacles for registration are identified.

Read more...

Access ECHA's REACH 2018 Roadmap.

Bacteria 'factories' churn out valuable chemicals

Source: Harvard University, December 24, 2014
Author: Kat J. McAlpine

A team of researchers led by Harvard geneticist George Church at the Wyss Institute for Biologically Inspired Engineering and Harvard Medical School (HMS) has made big strides toward a future in which the predominant chemical factories of the world are colonies of genetically engineered bacteria.

In a new study, scientists at the Wyss Institute modified the genes of bacteria in a way that lets them program exactly what chemical they want the cells to produce -- and how much -- through the bacteria's metabolic processes. The research was reported in the *Proceedings of the National Academy of Sciences (PNAS)*.

The concept of metabolic engineering, or manipulating bacteria to synthesize useful chemicals, is not new to synthetic biologists. However, what these recent findings promise is up to a 30-fold increase in chemical output. This demonstrates a technique that allows scientists to tap an almost endless list of chemicals they can produce using any type of bacteria, such as the common *E. coli*, which was used in the study. Most promising, the production timescale is nearly 1,000-fold faster than the methods currently used for metabolic engineering.

Read more...

See original article in the *Proceedings of the National Academy of Sciences (PNAS)*, "Evolution-guided optimization of biosynthetic pathways".

Are Adverse Outcome Pathways Here to Stay?

Source: *Environmental Science & Technology*, December 3, 2014
Author: Natalia Garcia-Reyero

Social pressure to minimize the use of animal testing and the ever-increasing concern on animal welfare, together with the need for more human-relevant and more predictive toxicity tests, are some of the drivers for new approaches to chemical screening. These approaches must also be able to accelerate the screening and assessment of the thousands of chemicals that are currently in use and in development for potential hazards to human and ecological health. Ideally, approaches are needed that decrease (or eliminate) animal testing while increasing predictivity. Efforts in many countries have focused on a toxicological pathway-based vision for human health assessments relying on in vitro systems and predictive models, [a] vision equally applicable to ecological risk assessment. A pathway-based analysis of chemical effects opens numerous opportunities to apply nontraditional approaches for understanding the risks of chemical exposure. Conservation of molecular initiating and key events leading to adverse outcomes of regulatory concern provide a defensible framework for extrapolating chemical effects across species, even if the specific adverse outcomes differ between them.

Read more...

Substitution of hazardous offshore chemicals in UK waters: an evaluation of their use and discharge from 2000 to 2012

Source: *Journal of Cleaner Production*, January 15, 2015
Authors: Maximillian A.G. La Védrine, David A. Sheahan, Rosalinda Gioia, Bob Rowles, Silke Kroeger, Claire Phillips, Mark F. Kirby

The offshore oil and gas industry will use and discharge large quantities of chemicals into the marine environment during operational activities, with some of those chemicals considered hazardous. Chemical substitution, as part of the environmental regulatory regime, has been advocated as a simple and effective tool to reduce inputs of hazardous substances to the environment. In 2007 the UK National Plan was introduced, to prioritise into four groups and subsequently phase out in stages the most hazardous substances used and discharged during offshore oil and gas operations. Level 1 substances categorised for phase out in 2010 were virtually eliminated from discharge between 2006 and 2012 and there was a significant decline in discharge of substances at Level 2 to 4 over the same period. The discharge of substitutable substances had been reduced to less than 5 tonnes at most production installations by 2012. More than 91% of this discharge is contributed by corrosion inhibitor, scale inhibitor, demulsifier and water clarifier formulations. The discharge of corrosion inhibitors accounted for the largest contribution to UK National Plan Level 2 substitutable substance discharges, and they appear to be the type of product with the fewest options found for substitution. ...

Read more...

Also see from *Environmental Science & Technology*, "Biocides in Hydraulic Fracturing Fluids: A Critical Review of Their Usage, Mobility, Degradation, and Toxicity".

Water and Carbon Dioxide: Green Solvents for the Extraction of Collagen/Gelatin from Marine Sponges

Source: *ACS Sustainable Chemistry & Engineering*, December 23, 2014
Authors: Alexandre A. Barros, Ivo M. Aroso, Tiago H. Silva, João F. Mano, Ana Rita C. Duarte, and Rui L. Reis

Marine sponges are extremely rich in natural products and are considered a promising biological resource. The major objective of this work is to couple a green extraction process with a natural origin raw material to obtain sponge origin collagen/gelatin for biomedical applications. Marine sponge collagen has unique physicochemical properties, but its application is hindered by the lack of availability due to inefficient extraction methodologies. Traditional extraction methods are time consuming as they involve several operating steps and large amounts of solvents. In this work, we propose a new extraction methodology under mild operating conditions in which water is acidified with carbon dioxide (CO_2) to promote the extraction of collagen/gelatin from different marine sponge species. An extraction yield of approximately 50% of collagen/gelatin was achieved. The results of

Fourier transformed infrared spectroscopy (FTIR), circular dichroism (CD), and differential scanning calorimetry (DSC) spectra suggest a mixture of collagen/gelatin with high purity, and the analysis of the amino acid composition has shown similarities with collagen from other marine sources. Additionally, in vitro cytotoxicity studies did not demonstrate any toxicity effects for three of the extracts.

Read more...

ChemSec report released on how companies "cry wolf" in the face of new environmental laws

Source: IPEN, January 13, 2015
Author: Theresa Kjell

Companies and trade organisations frequently tell politicians that stricter environmental legislation would harm the economy significantly -- but such claims have repeatedly been proven wrong. This is shown in the report Cry wolf, presented [today] by ChemSec.

The report reviews examples of past industry cost estimates of complying with suggested environmental regulations and compares them with the actual costs after the laws have entered into force. Industry systematically "cries wolf", saying that compliance costs would be considerable and jobs lost. But this is a false warning -- research shows that it is not the case. Rather, the cost for industry to adapt to environmental policies has decreased since the 1990s, and industry has managed well with adjusting their operations to new regulations.

Read more...

Also see article from ChemSec, "ChemSec calls for a balanced impact assessment on the EDC criteria".

See the ChemSec report "Cry wolf - predicted costs by industry in the face of new regulations".

NIOSH Signs Memorandum of Understanding to Advance Nanotechnology Research

Source: National Institute for Occupational Safety and Health, October 2, 2014

[Today] the National Institute for Occupational Safety and Health (NIOSH) signed a memorandum of understanding (MOU) with the Colleges of Nanoscale Science and Engineering (CNSE) at SUNY Polytechnic Institute in Albany, New York. NIOSH and CNSE will work together to advance research and guidance for occupational safety and health in the nanoelectronics industry and other settings where workers are potentially exposed to engineered nanomaterials.

The partnership between NIOSH and CNSE will serve as a platform for occupational safety and health research as well as educational and business initiatives leading to the development of new risk management guidance, recommendations, and findings relating to the potential human health impacts of exposure to nanomaterials.

Read more...

Also see NIOSH 2014 progress report, "The State of the National Initiative on Prevention through Design".

Medicines in the Environment: A Growing Threat to Wildlife and Drinking Water

Source: CHEM Trust, December 7, 2014
Author: Michael Warhurst

There is increasing evidence that human and veterinary medicines are damaging wildlife, a new report launched today by the environmental charity CHEM Trust shows. The report "Pharmaceuticals in the Environment: A growing threat to our tap water and wildlife" highlights that medicines ... are polluting rivers and have harmed wild birds and fish. Other species too have been affected, and people are also worryingly exposed.

This report comes at a time of growing global concern about the environmental effects of pharmaceuticals. Later this month a United Nations Environment Programme (UNEP) meeting ... will decide whether 'Pharmaceuticals in the Environment' should be recommended to be designated an emerging global policy issue.

Read more...

Access report, "Pharmaceuticals In The Environment: A Growing Threat To Our Tap Water and Wildlife".

Please send a message to mary@turi.org if you would like more information on any of these resources. Also, please tell us what topics you are particularly interested in monitoring, and who else should see Greenlist. An online search of the TURI Library catalog can be done at http://library.turi.org for greater topic coverage.

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