

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.

A Chemical Database and Discussion Group in One

*Source: [Building Green, July 9, 2018](#)
Author: Paula Melton*

Curious about the toxic substances in building products? See a chemical on a Health Product Declaration that you'd like to know more about? You might want to check out the Chemical Hazard Data Commons, a free online resource from the Healthy Building Network (HBN). HBN is a nonprofit focused on reducing the use of toxic chemicals in building products; the group also created Pharos, a set of online tools designed to aid building product research.

The Chemical Hazard Data Commons is "a pumped-up version of the Pharos Chemical and Material Library," explained Tom Lent, policy director at HBN. That database of more than 60,000 substances and their toxicity data was previously available only through a paid subscription. (Free registration is required to use the Data Commons.)

Users can search for chemicals by name -- the database includes "thousands of synonyms" for substances, according to Lent -- or by Chemical Abstracts Service (CAS) number.

[Read more...](#)

Access the [Chemical Hazard Data Commons](#).

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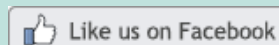
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[Source: Bergeson and Campbell, P.C., July 11, 2018](#)
Authors: Lynn L. Bergeson and Carla N. Hutton

On July 9, 2018, the National Institute for Occupational Safety and Health (NIOSH) published a one-page document on its Nanotechnology Research Center (NTRC), which conducts research to understand the potential effects on human health of exposure to engineered nanomaterials and develops methods to control or eliminate exposures. NTRC's accomplishments include:

- Publishing 101 journal articles in the peer-reviewed scientific literature during 2017;
- Publishing a new chapter in the *NIOSH Manual of Analytical Methods (NMAM), 5th Ed.* on the use of electron microscopy to analyze workplace air samples for carbon nanotubes/fibers;
- Publishing one of the first papers to look at toxicity along the lifecycle of a nanomaterial to provide context to potential health effects;
- Expanding research in additive manufacturing and publishing laboratory and field study results that characterize 3D printer emissions;
- Characterizing 22 commercial spray products claiming nano or colloidal silver as the active ingredient and finding a high degree of variability between claimed and measured values;
- Publishing a series of three nanomaterial handling recommendations, "Workplace Design Solutions"; and
- Publishing a workplace poster, "Controlling Health Hazards When Working with Nanomaterials: Questions to Ask Before You Start."

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TURI's Note: See our fact sheet on [Engineered Nanomaterials](#).

Software beats animal tests at predicting toxicity of chemicals

[Source: Nature, July 11, 2018](#)

Author: Richard Van Noorden

Machine-learning software trained on masses of chemical-safety data is so good at predicting some kinds of toxicity that it now rivals -- and sometimes outperforms -- expensive animal studies, researchers report.

Computer models could replace some standard safety studies conducted on millions of animals each year, such as dropping compounds into rabbits' eyes to check if they are irritants, or feeding chemicals to rats to work out lethal doses, says Thomas Hartung, a toxicologist at Johns Hopkins University in Baltimore, Maryland. "The power of big data means we can produce a tool more predictive than many animal tests."

In a paper published in *Toxicological Sciences* on 11 July, Hartung's team reports that its algorithm can accurately predict toxicity for tens of thousands of chemicals -- a range much broader than other published models achieve -- across nine kinds of tests, from inhalation damage to harm to aquatic ecosystems.

The paper "draws attention to the new possibilities of big data", says Bennard van Ravenzwaay, a toxicologist at the chemicals firm BASF in Ludwigshafen, Germany. "I am 100% convinced this will be a pillar of toxicology in the future." Still, it could be many years before government regulators accept computer results in place of animal studies, he adds. And animal tests are harder to replace when it comes to assessing more complex harms, such as whether a chemical will cause cancer or interfere with fertility.

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See article in *Toxicological Sciences*, "[Machine learning of toxicological big data enables read-across structure activity relationships \(RASAR\) outperforming animal](#)

Energy efficiency and environmental assessment of papermaking from chemical pulp - A Finland case study

Source: *Journal of Cleaner Production*, October 10, 2018

Authors: Fabiana Corcelli, Gabriella Fiorentino, Jarmo Vehmas, Sergio Ulgiati

Pulp and paper manufacturing sector constitutes one of the largest industry segments in the world in terms of water and energy usage as well as of significant use and release of chemicals and combustion products. Since its chief feedstock -- wood fiber -- is renewable, this industry can play an important role in sustainable development, becoming an example of how a resource can be managed to provide a sustained supply to meet society's current and future needs. This calls for a thorough assessment of environmental costs and impacts associated to pulp and paper operations, including both direct and indirect inputs supporting the whole papermaking process as well as the main outputs, co-products and by-products. By means of Life Cycle Assessment (LCA) methodology, this paper aims at assessing the environmental sustainability of the pulp and paper production so as to identify those phases across the whole supply chain that entail the highest environmental loads, thus requiring improvements. ...

In particular, the partial fulfillment of electricity and heat requirements by means of a circular use of residues within the system leads to a noteworthy reduction of impacts in all the investigated impact categories, up to more than 70% in global warming and fossil depletion potentials, thus contributing to higher process sustainability compared with other averaged European systems for paper production.

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Massachusetts advances flame retardant ban

Source: *Chemical Watch*, July 11, 2018

Author: Kelly Franklin

Massachusetts' Senate has approved a bill to ban certain flame retardants from children's products and home furnishings.

The measure (S.2555) is aimed at residential upholstered furniture, bedding, carpeting, window treatments and products intended for children less than 12 years old.

If passed into law, it would prohibit the sale of such items if they contain, in any component part, more than 1,000 parts per million of any of the following substances or their analogues:

- tris(1,3-dichloro-2-propyl)phosphate (TDCPP);
- tris(2-chloroethyl)phosphate (TCEP);
- antimony trioxide;
- hexabromocyclododecane (HBCD);
- bis(2-ethylhexyl)-3,4,5,6-tetrabromophthalate (TBPH);
- 2-ethylhexyl-2,3,4,5-tetrabromobenzoate (TBB);
- chlorinated paraffins;
- tris(1-chloro-2-propyl)phosphate (TCPP);
- pentaBDE;
- octaBDE; or
- tetrabromobisphenol A (TBBPA).

The ban would not apply to products manufactured before 1 January 2019.

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See information on MA Bill S.2555, "[An Act to Protect Children and Families From Harmful Flame Retardants](#)".

Also see from NH Public Radio, "[Sununu Signs Bills on PFAS, Cancer Treatment Coverage for Firefighters](#)".

Seven Respiratory Hazards Every Safety Manager Should Understand

Source: [Occupational Health & Safety, July 1, 2018](#)

Author: Sally J. Smart

Breathing problems continue to rank as one of the most frequently cited OSHA standards. In 2017, OSHA issued 3,381 citations for respiratory-related violations, including failure to have a written respiratory protection program and failure to conduct required medical examinations for workers who use respirators. So it is clear those responsible for safety must continue to pay special attention to these issues.

The fact is today's complex industrial environments have led to changing respiratory risks. Although many of the leading risks are not new, changing conditions over time may have heightened the risks for workers. Or, in some cases, OSHA has upped the protection requirements for substances as new research emerges. Factors such as the possibility of a chemical or biological attack have heightened safety concerns.

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*Greenlist Bulletin is compiled by:
Mary Butow
Research and Reference Specialist
Toxics Use Reduction Institute
University of Massachusetts Lowell
126 John Street, Suite 14, Second Floor
Lowell, MA 01852
978-934-4365
978-934-3050 (fax)
mary@turi.org*