

Greenlist Bulletin

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

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Gymnasts highly exposed to flame retardants

[Source: Environmental Health News, November 15, 2013](#)

Author: Lindsey Konkel

Eleven-year-old Katya Olsen has practiced gymnastics since she was two years old. Now in sixth grade, she trains for competitions four hours a day, five days a week at a gym near her home in Arlington, Va.

Katya's gym, like most, contains an enormous pit filled with thousands of foam blocks -- a soft landing for gymnasts learning new tricks.

Now research suggests that young gymnasts may be exposed to hormone-disrupting chemicals from ingesting or inhaling dust created by these polyurethane blocks.

A small study of collegiate gymnasts detected four to 6.5 times more flame retardants in their blood than in the general U.S. population's.

[Read more...](#)

See original study in *Environmental Science & Technology*, "[Flame Retardant Exposure among Collegiate U.S. Gymnasts.](#)"

See article in One Green Planet, "[New Documentary 'Toxic Hot Seat' Lights a Fire of Awareness Against Dangerous Flame Retardants.](#)"

Daphnid Life Cycle Responses to New Generation Flame Retardants

[Source: Environmental Science & Technology, November 1, 2013](#)

Authors: Susanne L. Waaijers, Tanja E. Bleyenbergh, Arne Dits, Marian Schoorl, Jeroen Schütt, Stefan A. E. Kools, Pim de Voogt, Wim Admiraal, John R. Parsons, and Michiel H. S. Kraak

Relatively hazardous brominated flame retardants (BFRs) are currently substituted with halogen-free flame retardants (HFFRs). Consequently, information on their persistence, bioaccumulation and toxicity (PBT) is urgently needed. Therefore, we investigated the chronic toxicity to the water flea *Daphnia magna* of two HFFRs, aluminum diethylphosphinate (ALPI) and 9,10-dihydro-9-oxa-10-

phosphaphenanthrene-oxide (DOPO). The toxicity of ALPI increased from a 48 h LC₅₀ of 18 mg L⁻¹ to a 21 day LC₅₀ value of 3.2 mg L⁻¹, resulting in an acute-to-chronic ratio of 5.6. This may imply a change in classification from low to moderate toxicity. ALPI also affected sublethal life cycle parameters, with an EC₅₀ of 2.8 mg L⁻¹ for cumulative reproductive output and of 3.4 mg L⁻¹ for population growth rate, revealing a nonspecific mode of action. DOPO showed only sublethal effects with an EC₅₀ value of 48 mg L⁻¹ for cumulative reproductive output and an EC₅₀ value of 73 mg L⁻¹ for population growth rate. The toxicity of DOPO to *D. magna* was classified as low and likely occurred above environmentally relevant concentrations, but we identified specific effects on reproduction.

Given the low chronic toxicity of DOPO and the moderate toxicity of ALPI, based on this study only, DOPO seems to be more suitable than ALPI for BFR replacement in polymers.

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Current Strategies for Engineering Controls in Nanomaterial Production and Downstream Handling Processes

[Source: National Institute for Occupational Safety and Health, November 2013](#)

The focus of this document is to identify and describe strategies for the engineering control of worker exposure during the production or use of engineered nanomaterials. Engineered nanomaterials are materials that are intentionally produced and have at least one primary dimension less than 100 nanometers (nm). Nanomaterials may have properties different from those of larger particles of the same material, making them unique and desirable for specific product applications. The consumer products market currently has more than 1,000 nanomaterial-containing products including makeup, sunscreen, food storage products, appliances, clothing, electronics, computers, sporting goods, and coatings. As more nanomaterials are introduced into the workplace and nano-enabled products enter the market, it is essential that producers and users of engineered nanomaterials ensure a safe and healthy work environment.

[Read more...](#)

Access ["Current Strategies for Engineering Controls in Nanomaterial Production and Downstream Handling Processes."](#)

See SAFENANO press release about the recommendations, ["Controlling worker exposures to nanomaterials: NIOSH issues new research-based recommendations."](#)

Also from SAFENANO:

- ["BSI publishes guide to regulation and standards for nanomaterials and nano-enabled products."](#)
- ["Sweden proposes National Action Plan for nanomaterials."](#)

Nanotechnology and human health: Scientific evidence and risk governance. Report of the WHO expert meeting 10-11 December 2012, Bonn, Germany

[Source: World Health Organization, 2013](#)

Nanotechnology, the science and application of objects smaller than 100 nanometres, is evolving rapidly in many fields. Besides the countless beneficial applications, including in health and medicine, concerns exist on adverse health consequences of unintended human exposure to nanomaterials.

In the 2010 Parma Declaration on Environment and Health, ministers of health and of environment of the 53 Member States of the WHO Regional Office for Europe listed the health implications of nanotechnology and nanoparticles among the key environment and health challenges.

The WHO Regional Office for Europe undertook a critical assessment of the current state of knowledge and the key evidence on the possible health implications of nanomaterials, with a view to identify options for risk assessment and policy formulation, and convened an expert meeting to address the issue.

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Zapping a Safer Nanocoating

Source: [PaintSquare](#), November 14, 2013

"Serious health and safety concerns" over nanoparticles in the newest paints and coatings is driving innovative European technology to make those products safer and less environmentally damaging.

The idea: Remove the particles.

The EU-funded NANOFLOC project, now nearing the midway point, aims to develop a system that can remove nanoparticles from coating wastewater in an efficient and cost-effective manner to prevent pollution.

[Read more...](#)

Also read in *Environmental Science & Technology*, "[Engineered Nanoparticles May Induce Genotoxicity.](#)"

The substitution principle in chemical regulation: a constructive critique

Source: [Journal of Risk Research](#), October 3, 2013

Author: Ragnar Lofstedt

The substitution principle is one of the building blocks of modern day chemical regulation as highlighted in the registration, evaluation, authorisation and restriction of chemicals regulation. But what is the substitution principle, what is the history of its use and how do relevant authorities and regulatory actors view it? This article addresses these questions and is based on a grey literature review and 90 in-depth face-to-face formal and informal interviews with leading policy-makers in Europe, with a specific focus on Scandinavia. The paper shows that the substitution principle is [a] surprisingly under researched topic and that there is no clear consensus on how to best apply the principle. The penultimate section puts forward a series of recommendations with regard to the use of the substitution principle that European policy-makers and regulators may wish to adopt.

[Read more...](#)

Also read article on the paper in *ScienceDaily*, "[More Research Needed Into Substitution Principle and Regulation of Potentially Hazardous Chemical Materials, Experts Urge.](#)"

See several responses to the *Journal of Risk Research* article from:

- [Anna Olofsson](#) of Mid Sweden University
- [Tomas Oberg](#) of the European Chemicals Agency
- [Adam Abelkop & John Graham](#) of the School of Public and Environmental Affairs, Indiana University
- [Terje Aven](#) of University of Stavanger
- [Royal Society of Chemistry](#)

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