

Environment and Health Groups' Statement on Triclosan: Call on Canadian Government to Prohibit Triclosan in All Products

We, the undersigned public interest and not-for-profit groups, urge the Government of Canada to take urgent action to officially declare Triclosan (CAS#3380-34-5) to be toxic and add this chemical to the Toxics Substances List (Schedule 1) under the *Canadian Environmental Protection Act, 1999* (CEPA, 1999). Measures must be taken to ensure a phase out of this chemical in all products. As well, mandatory alternatives assessment must occur to ensure informed substitution if chemical biocides can be shown to be necessary in specific applications. Applying alternatives assessment is particularly important to ensure that related antibacterial chemicals such as Triclocarban (CAS#101-20-2) do not become regrettable substitutes for triclosan.

Canadians are exposed to triclosan through a variety of routes including consumer and institutional products, treated textiles and food contact materials, drinking water contaminated with triclosan, breast milk and contaminated household dust.¹ The recent report on human biomonitoring in Canada² shows triclosan to be a wide ranging contaminant in the Canadian population. Triclosan is also an endocrine disruptor, with particular impacts on the thyroid. A new study released in August 2014 is the first to report on real-world exposures during pregnancy to triclosan and triclocarban.³ It found that 50% of babies' cord blood contained triclosan. The presence of these substances pose a direct risk to the delicate balance of thyroid hormone in pregnant women and their infants that is necessary for healthy brain development.

The human and environmental health hazards of triclosan are highlighted in a July 2014 GreenScreen® assessment of triclosan. That report clearly demonstrates that triclosan is a chemical of high concern.⁴ Triclosan is highly toxic in the aquatic environment, persistent and bioaccumulative, and is present in wastewater treatment plant effluents as well as in sewage sludge.

Triclosan and triclocarban, a similar antibacterial chemical incorporated into bars of soap and other consumer products, are ranked in the list of top contaminants of concern worldwide. US streams have a 60 – 100% likelihood of containing detectable quantities of both these chemicals. The presence of triclosan and triclocarban is so pervasive globally that they are now detectable in house dust worldwide, in ocean water and locations as remote as the water loop of spacecraft.⁵

In March 2012, two departments of the Canadian Government released their Preliminary Assessment Report for Triclosan. This assessment revealed varying levels of triclosan in wastewater effluent across Quebec, Ontario and British Columbia with data for triclosan concentrations in wastewater sludge across more provinces. Environment Canada concluded that triclosan meets the criterion of ‘CEPA toxic’ and could be added to the CEPA 1999 List of Toxic Substances for a range of possible risk management measures,⁶ though to date, no action has been taken. In contrast, Health Canada stated that triclosan does not constitute a danger in Canada to human life or health. The disparity between the draft conclusions of Health Canada and Environment Canada for triclosan does not provide the necessary regulatory signal to the marketplace that this chemical should be eliminated from commerce.

The two departments failed to take a life cycle perspective to the assessment of triclosan and to take into account that 95% of the human use of this chemical goes down a drain where it further degrades into highly hazardous substances in the receiving waters. Triclosan is not only a direct hazard but undergoes transformation into hazardous methyl-triclosan during wastewater treatment, as well as being photo-transformed into various forms of dioxins including 2,8-DCDD, which the government considers to be of low toxicological concern. However, recent research notes that three other dioxin congeners, which are known photo-transformation products of chlorinated derivatives of triclosan, were also detected.⁷ These transformation products are potentially of greater concern than 2,8-DCDD formed directly from triclosan and could be an important, yet unrecognized, source for polychlorinated dioxins in the environment. More dioxin generation will occur when triclosan-containing municipal sludge is incinerated.⁸ These transformation products are also of concern in the Great Lakes basin where triclosan has been detected in over 89% of surface water samples.⁹ Levels of triclosan and triclocarban in shallow sediments are known to make the survival and activity of many different animal species impossible.¹⁰

And it is not just our rivers, lakes and oceans that are at risk. Triclosan and triclocarban are contaminating our terrestrial environment, particularly through the application of sewage sludge to land where these chemicals are entering into animal feed and crops destined for human consumption. Researchers also warn that ‘accumulation of antimicrobials in worms and plant material and subsequent uptake by higher organisms is a known pathway for ecological risks from exposure of vertebrates, including songbirds.’¹¹

Since the draft assessment was released almost two years ago, evidence continues to mount about triclosan's human health impacts – notably a recent study released November 17, 2014 from the US National Academy of Sciences demonstrating that triclosan is a liver tumour promoter.¹²

Triclosan's link to antibiotic resistance is of further high concern. Indeed, the Canadian Medical Association has called upon the federal government to ban the sale of household antibacterial products due to the risk of bacterial resistance.¹³ More fundamentally, both the Public Health Agency of Canada and the US Food and Drug Administration have indicated that soaps with added antibacterial ingredients, such as triclosan, are no more effective than the mechanical action of washing with plain soap and water.¹⁴ A GreenScreen assessment of triclocarban¹⁵ reveals this chemical to be an endocrine disruptor, persistent in the environment and highly hazardous in water - underlying the need to prevent the use of triclocarban as a possible substitute for triclosan.

We the undersigned therefore call on the Government of Canada to:

- 1. Officially declare triclosan (CAS RN: 3380-34-5) to be toxic and add triclosan to the Toxic Substances List (Schedule 1) under CEPA, 1999;*
- 2. Implement a phase-out of triclosan in all consumer and institutional products, with priority given to cleaning and personal care products, and require mandatory product labelling during the phase-out period;*
- 3. Adopt a framework of Informed Substitution and ensure that triclocarban is prohibited so that industry does not adopt a regrettable substitution.*
- 4. Require transparent alternatives assessments for safer substitutes if chemical biocides are shown to be necessary in specific cases.*

Furthermore, because the Great Lakes Basin is a binational responsibility, we urge the Government of Canada to liaise with the Government of the United States of America, all provincial and state governments in the Great Lakes Basin, and with the International Joint Commission to prohibit triclosan and ensure transparent alternatives assessments for safer substitutes if chemical biocides are shown to be necessary in specific cases.

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ENDNOTES

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- ¹ Environment Canada/Health Canada. Risk Management Scope for Triclosan. March 2012.
 - ² Health Canada. Second Report on Human Biomonitoring of Environmental Chemicals in Canada. 2013.
 - ³ BF Pycke et al. Human fetal exposure to triclosan and triclocarban in an urban population from Brooklyn, New York. *Environ Sci Technol*. 2014 Aug 5;48(15):8831-8. doi: 10.1021/es501100w. Epub 2014 Jul 15.
 - ⁴ Report and GreenScreen assessments available at: <http://www.cela.ca/triclosan-and-triclocarban>.
 - ⁵ Rolf U. Halden. On the Need and Speed of Regulating Triclosan and Triclocarban in the United States. *Environ. Sci. Technol*. 2014, 48, 3603-3611. American Chemical Society.
 - ⁶ Health Canada/Environment Canada. Preliminary Assessment Report for Triclosan. March 2012.
 - ⁷ Jeffrey M Buth, et al. Dioxin Photoproducts of Triclosan and Its Chlorinated Derivatives in Sediment Cores. *Environ. Sci. Technol*, 2010, 44 (12), pp 4545–455.
 - ⁸ K. D. Doudrick, D.B. Jones, T. Kalinowski, E. M. Hartmann, and R. U. Halden. Assessment of the Contribution of Triclosan to Dioxin Emissions from Sludge Incineration in the U.S. Using a Mathematical Model. In *Contaminants of Emerging Concern in the Environment: Ecological and Human Health Considerations*; Halden, R.; ACS Symposium Series; American Chemical Society: Washington, DC, 2010.
 - ⁹ Gary Klecka, Carolyn Persoon, and Rebecca Currie. Chemicals of Emerging Concern in the Great Lakes Basin: An Analysis of Environmental Exposures. 2010. *Rev Environ Contam Toxicol*. 2010;207:1-93.
 - ¹⁰ Rolf U. Halden. On the Need and Speed of Regulating Triclosan and Triclocarban in the United States. *Op.cit*.
 - ¹¹ *ibid*
 - ¹² Mei-Fei Yueh et al. The commonly used antimicrobial additive triclosan is a liver tumor promoter. *Proceedings of the National Academy of Sciences of the United States of America*. Available at: <http://www.pnas.org/content/early/2014/11/12/1419119111.abstract>
 - ¹³ Canadian Medical Association. Public Health Issue Briefing Antimicrobial/Antibacterial Products. March 2010.
 - ¹⁴ Environment Canada/Health Canada. Risk Management Scope for Triclosan. March 2012.
 - ¹⁵ Report and GreenScreen assessments available at: <http://www.cela.ca/triclosan-and-triclocarban>.