

Seminar Series 2012-2013

Southern Ontario Centre for Atmospheric Aerosol Research
University of Toronto

Halogenated flame retardants: past, present and future



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Halogenated flame retardants have been added to commercial goods and products since the 1970s to reduce the spread of fire. Their applications include textile, furniture foam, construction materials, and electronics (plastic casings and circuit boards). Polybrominated diphenyl ethers (PBDEs), organobromine compounds, dominated the market in the 90's, and consisted of three commercial mixtures. Within a decade there was mounting evidence showed the global distribution of PBDEs and their persistence, bioaccumulative and toxic properties. By 2004, two PBDE formulations were phased out by regulation in Europe and voluntarily by industry in North America. Since then, replacement compounds have been found in the environment. These replacement compounds include halogenated and organophosphorus compounds.

I will discuss the prevalence of these 'novel' flame retardants measured across Toronto by means of passive and active air sampling, in both indoor and outdoor environments. Concentrations remain highest indoors because of the abundance of sources, and have been measured in air, dust, window films and dermal wipes. Outdoors a monitoring transect across the city indicated novel flame retardants concentrations are spatially distributed, with an urban pulse being generated by both population and building density. Suburban regions are on an order of magnitude lower than downtown Toronto.

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Wallberg Building, 200 College Street, Room 407



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