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Determining the contribution of indoor microenvironments to outdoor contamination of halogenated flame retardants

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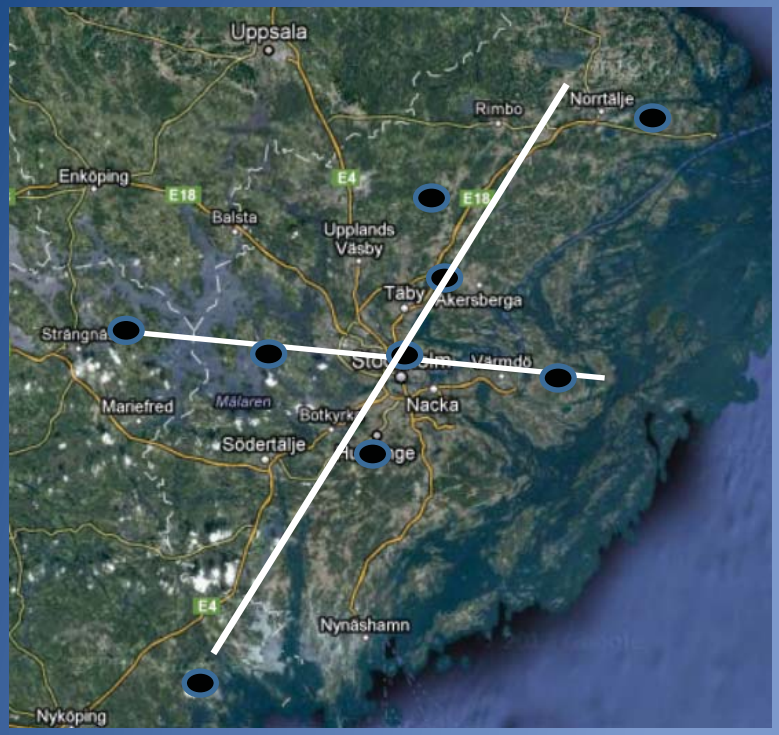
Overall Objectives

- Quantify the contribution of indoor flame retardants (FRs) to outdoor contamination via ventilation systems (Adaptation of Leena Sahlström's method)
- Use the results to optimize an already existing model of the Stockholm area (Anna Palm-Cousins)

Overall Objectives

- Contribute to the overall understanding of the distribution in the environment and human exposure to novel FRs (INFLAME)

Stockholm Sampling



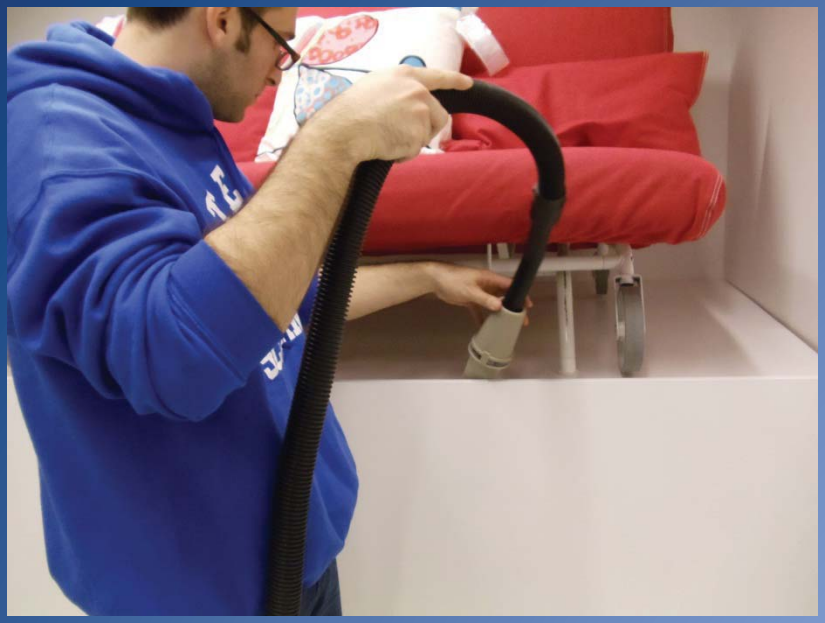
- Indoor Environments - stores, offices, apartments, schools
  - Air
  - Dust
- Outgoing
  - Air via ventilation systems
- Outdoor
  - Air
  - Soil

Specific Questions to Answer

- Is there a difference between indoor and out-going air?
- How are these compounds partitioned between air, suspended particles, and settled dust?
- Is there a difference in the dust content from on top of a treated product (e.g. a TV or car seats) and the dust on the shelves around it?
- How are these compounds distributed in the environment outside of the city?
- How are these compounds partitioned between air and soil once they are in the environment?

Indoor Air

Ventilation



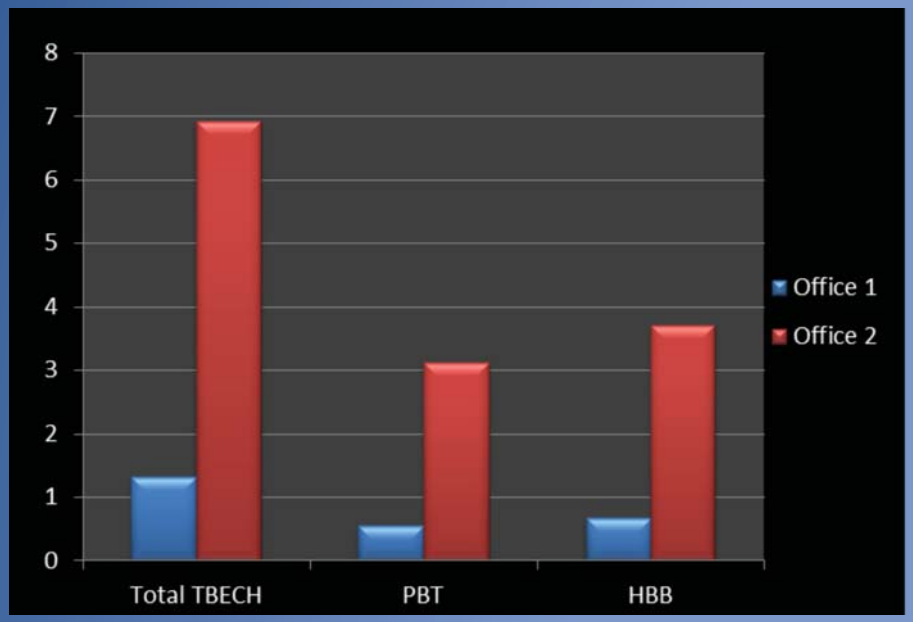
Indoor Dust

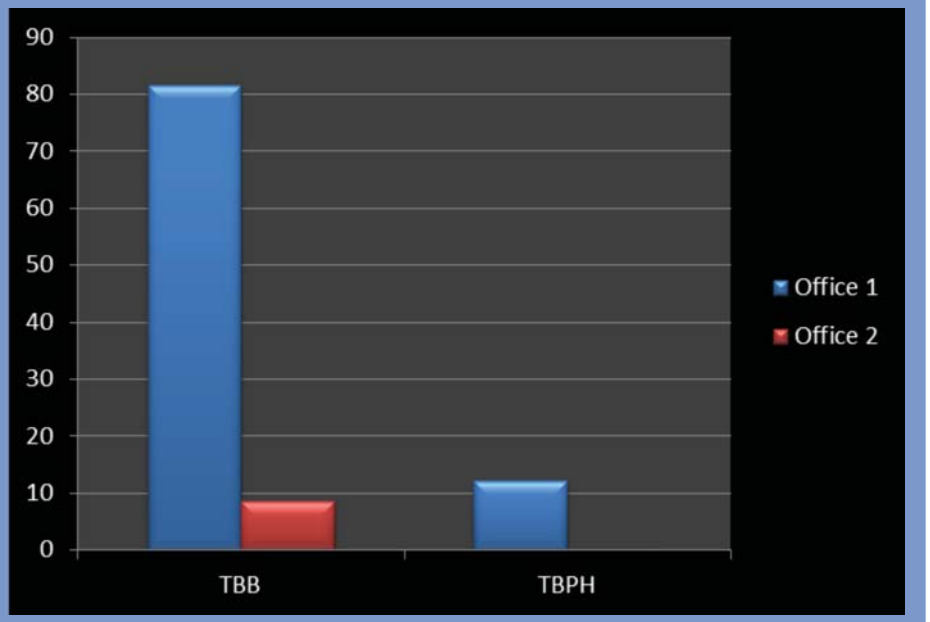
Cars

Outdoor Air Sampler (high volume)

Preliminary Results

- New flame retardants TBB, TBPH, BTBPE, DBDPE and old flame retardants PBT, HBB, DP, and TBECH have been detected in dust and air in Stockholm





Progress to date

- Analytical method development
- PUF breakthrough experiment
- Sampling

Coming up

- Sampling schools and offices
- Poster presentation SETAC Berlin
- Secondment in Birmingham starting in the fall

Thanks for listening!