



Network of reference laboratories and related organisations for monitoring and bio-monitoring of emerging environmental pollutants

Workshop

”New” brominated flame retardants as emerging contaminants in the environment: sources, occurrence, pathways and measurement methods

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” New” brominated flame retardants as emerging contaminants in the environment: sources, occurrence, pathways and measurement methods

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NORMAN-Network



Background to the workshop of emerging brominated flame retardants (BFR)

- *Due to the phase out of polybrominated diphenyl ethers (PBDEs) an increasing number of alternative flame retardant chemicals have been introduced to comply with consumer product fire safety standards*
- Recent screening studies have identified a widespread occurrence of “new” BFRs in the Nordic environment
- A number of research gaps for novel BFRs, concerning analytical aspects, environmental issues and humans exposure have been identified in recent scientific papers and review articles

Brominated flame retardants in the Nordic environment

In a Nordic screening study about 16 BFRs and dechlorane plus were regularly found in several different environmental matrices.

There were geographic differences and differences in occurrence among substances and groups of substances. The FRs were found far from source areas

A need for follow up studies for identification of emission sources and important pathways of the flame retardants as well as investigations of the ecotoxicology and human effects was identified

Furthermore, there is a need for further development and validation of measurement methods

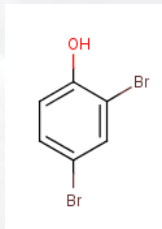
TemaNord 2011:528

Brominated Flame Retardants (BFR) in the Nordic Environment

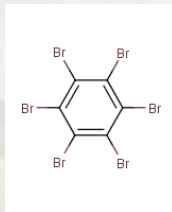
Schlabach *et al.*

"New" emerging brominated flame retardants and other flame retardants

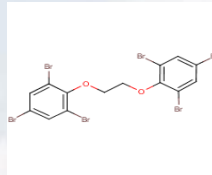
2,4-Dibromophenol
24DBP



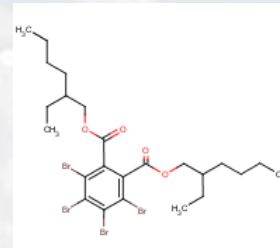
Hexabromobenzene
HBB



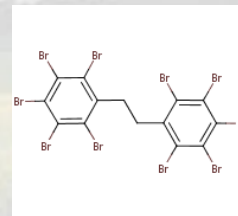
1,2-Bis(2,4,6-tribromophenoxy) ethane
BTBPE



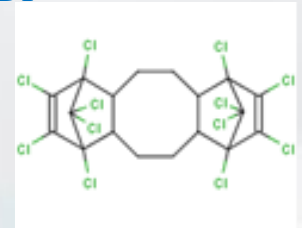
Bis(2-ethylhexyl) tetrabromophthalate
BEHTBP



Decabromodiphenylethane
DBDPE



Dechlorane Plus
DP



“New” BFRs and other alternative FRs as emerging contaminants in the environment: sources, occurrence, pathways and measurement methods

Main objectives

Present knowledge will be summarised and future research needs will be identified

Overall issues

- **How big is the problem with emerging FRs?**
- **Which message will we give to policy makers?**

“New” brominated flame retardants as emerging contaminants in the environment: sources, occurrence, pathways and measurement methods

The following topics will be addressed:

- **Occurrence and distribution of emerging FR in the environment.** Where do we find them and in which concentrations?
- **Emissions sources and important pathways of FR.** Use, fate and of transformation products will be discussed.

“New” brominated flame retardants as emerging contaminants in the environment: sources, occurrence, pathways and measurement methods

The following topics will be addressed:

- **Potential ecotoxicology and human effects.** Which effects are of concern? What do we need to know for reliable risk assessment?
- **Measurement methods.** The need for development and harmonization of methods will be addressed. Do we need to include new FRs in monitoring programs?

Agenda 23 November

12:20	Registration	
13:00	Welcome and Chair	Åke Iverfeldt
13:15	Presentation of the NORMAN network	Valeria Dulio
13:30	Background to the workshop	Eva Brorström-Lundén
13:45	Improving the navigation among BFRs	Åke Bergman
14:15	“New” Brominated Flame Retardants (BFR) in the Nordic and Arctic Environments	Martin Schlabach
14:45	Coffee	
15:15	BFRs in marine mammals from Arctic and North Atlantic regions, 1986-2009	Anna Rotander Bert van Bavel
15:45	Chlorinated Flame Retardants (Dechloranes): analysis, occurrence and behaviour.	Ethel Eljarrat
16:15	Occurrence and use of brominated flame retardants and the fate of their toxic transformers: a challenge for policymakers	Stefan Posner
16:45	Fate studies of selected BFRs	Patrik . Andersson
17:15	Polybrominated dibenzofurans: potential PBDE transformation products of concern	Peter Haglund
17:45	Closing remarks	Eva Brorström-Lundén
19:00	Dinner, Spårvagnshallarnas festvåning, Tegnérgatan 2 C	

Agenda 24 November

08:30	Welcome and chair	Valeria Dulio
08:35	Long-range transport of various BFRs, in particular the non-PBDEs in comparison to PBDEs	Martin Scheringer
09:00	Indoor environment and human exposure of BFRs	Line Smastuen Haug
09:30	What do we know about the effects of new BFRs?	Cynthia de Wit
10:00	Coffee	
10:30	“Old”, “new” and “novel” flame retardants in the environment - analytical methods and levels	Sicco Brandsma
11:00	Conclusions from workshop/debate	Eva Brorström-Lundén
12:00	End of workshop	

” New” brominated flame retardants as emerging contaminants in the environment: sources, occurrence, pathways and measurement methods

- The workshop will be followed by a meeting with invited experts.
- The main objective of this expert meeting is to evaluate the future requirements with regard to new emerging FRs
- The presentations and discussions and from this the workshop will form the bases for the expert meeting
- The outcome from the expert meeting will be a position paper with conclusions and recommendations