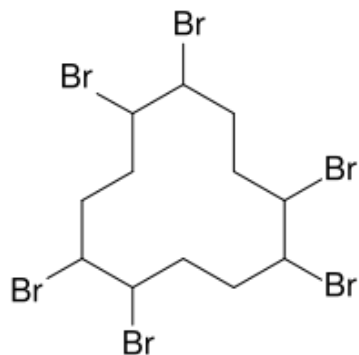




# Alternatives to HBCD – state of play

*Dr Peter Dawson, POPRC*

14 October 2013



1,2,5,6,9,10-hexabromocyclododecane

Stereoisomers: 70-95%  $\gamma$ -HBCD, 3-30%  $\alpha$ - and  $\beta$ -HBCD

**PRODUCTION:** China, Netherlands, Japan, and USA (31,000 tonnes in 2011)

**USE:** Additive brominated flame retardant

- Insulation and construction:
  - flame-retarded expanded (EPS) and extruded (XPS) polystyrene foam
- Back-coatings for upholstery and other interior textiles
- Electric and electronic appliances:
  - high impact polystyrene (HIPS)

Proposal by Norway  
(UNEP/POPS/POPRC.5/4) 2009

Annex D criteria:  
Decision POPRC.5/6, 2009

Annex E criteria: Risk profile  
(UNEP/POPS/POPRC.6/13/Add.2) 2010

Annex F criteria: Risk management evaluation  
(UNEP/POPS/POPRC.7/19/Add.1) 2011

Additional information on alternatives to HBCD in EPS and XPS (UNEP/POPS/POPRC.8/4)

COP-6 decision SC-6/13 to list HBCD in Annex A with exemptions 2013

1. *Decides* to amend part I of **Annex A** to the Stockholm Convention on Persistent Organic Pollutants to list therein hexabromocyclododecane, with **specific exemptions for production** as allowed for the parties listed in the register of specific exemptions **and for use in expanded polystyrene and extruded polystyrene in buildings** by inserting the following row:

Chemical	Activity	Specific exemption
Hexabromocyclododecane	Production	As allowed for the parties listed in the Register in accordance with the provisions of Part VII of this Annex
	Use	Expanded polystyrene and extruded polystyrene in buildings in accordance with the provisions of Part VII of this Annex

### Part VII

Each Party that has registered for the exemption pursuant to Article 4 for the production and use of hexabromocyclododecane for expanded polystyrene and extruded polystyrene in buildings **shall take necessary measures to ensure that expanded polystyrene and extruded polystyrene containing hexabromocyclododecane can be easily identified by labelling or other means throughout its life-cycle.**

- Alternative materials and techniques to those requiring HBCD use are available
  - Alternative insulation materials (to PS) – glass wool, rock wool, cellulose, phenolic foams
  - Alternative construction techniques are available – use of thermal barriers, product redesign (sandwich panels)
  - Alternatives to HIPS (electrical products) and other HBCD applications (textiles) are available
- Chemical alternatives to replace HBCD
  - Commercially available for HIPS and textile backcoatings
  - Not yet fully commercially available to replace HBCD in EPS and XPS

## **HBCD substitution – polymeric alternatives**

- Chemtura/Great Lakes Solutions
- Verbal update from Albemarle
- Written update from ICL-IP

## **HBCD substitution – non-polymeric alternatives**

- GreenChemicals Italy

## User comments (all alternatives)

- INEOS Styrenics
- BASF
- Dow Building Solution
- Synthos SA
- Isochemicals
- Kaneka Corporation – presentation available
- Knauf Insulation – presentation available
- Flint Hills Resources - press release available

- Implementing a HBCD phase out
  - a. Proposed Risk Management Measure in Canada
  - b. Authorization Process under REACH in the EU
  - c. US EPA Design for Environment alternatives assessment





Thank You