

## Industry comments on HBCD nomination as a POP

The European HBCD<sup>1</sup> Industry Working Group<sup>2</sup> objects to Norway's proposal to nominate the flame retardant HBCD as a possible Persistent Organic Pollutant (POP) under the UNEP Stockholm Convention on POPs and the UNECE LRTAP POPs Protocol for the following reasons.

### EU process yet to be concluded

On 28 October 2008, HBCD was included on the EU candidate list for Authorisation on the basis of claimed PBT properties.

In that respect, the opinion of the EU SCHER Committee<sup>3</sup>, dated 6 May 2008, stated that recent analysis "may indicate that the substance is not very persistent in the environment and that the PBT classification needs to be reconsidered following publication" of this new data. The new data was published recently and is available for review<sup>4</sup>. In view of the SCHER opinion, industry believes that the PBT properties should be discussed again under REACH.

The REACH Authorisation process is yet to be concluded. It will have to consider latest science, socio-economic implications and the fact that there are currently no technically feasible alternatives to HBCD in polystyrene insulation foams.

As a result, the initiation of a UN review at this stage does not seem appropriate, including from a resources perspective, as it would cover the same aspects.

### HBCD does not meet the "P" criterion under POP for the following reasons:

#### 1. Need to use relevant studies

Corresponding to the industry comments on the HBCD EU Risk Assessment Report, we urge the use of the fully valid biodegradation simulation studies performed with **low** and environmentally relevant HBCD concentrations (around 25 µg/l) for the calculations of more realistic half-life times.

On the other hand, studies performed with higher HBCD levels, which were specifically designed for the characterization of biodegradation pathways, should not be misused to calculate biodegradation kinetics since at higher HBCD concentrations important steps such as transfer of HBCD into the microbial cell might become rate-limiting.

#### 2. Half-life values are below POP thresholds

The experimentally determined half-life time values for sediment and soil, which were determined in the above mentioned valid studies, are below the POP threshold values of 180 days. These values are for

- Sediment 1.1 – 1.5 / 11 – 32 days (anaerobic / aerobic)
- Soil 6.9 / 63 days (anaerobic / aerobic)

<sup>1</sup> Hexabromocyclododecane, CAS N° 25637-99-4 & CAS N° 3194-55-6

<sup>2</sup> The HBCD Industry Working Group gathers HBCD producers and users in the polystyrene insulation foam sector, the major application of HBCD. The HBCD producers are represented by EBFRIIP (European Brominated Flame Retardant Industry Panel) and the HBCD users in the polystyrene insulation industry are members of PlasticsEurope (for expandable polystyrene) and Exiba (for extruded polystyrene).

<sup>3</sup> EU Scientific Committee on Health and Environmental Risks - the SCHER is an independent committee of scientific experts of the EU specialised in examining the toxicity and ecotoxicity of chemicals, biochemicals and biological compounds. It is consulted in the process of an EU Risk Assessment.

<sup>4</sup> "A Significant Downturn in Levels of Hexabromocyclododecane in the Blubber of Harbor Porpoises (Phocoena phocoena) Stranded or Bycaught in the UK: An Update to 2006CEFAS study", Law and al., CEFAS Centre, Environ. Sci. Technol. (October 2008)



To confirm the results obtained in one of these studies with only one soil type, a further aerobic soil biodegradation study with two different soil types has been initiated (expected completion by early 2009).

As regards the above mentioned half-life time values, it is important to mention that Sweden (Rapporteur on the EU Risk Assessment used as a basis for the Norwegian nomination) have corrected the data by extrapolating from the temperature used in the actual study to lower ambient temperatures.

A recent workshop organized by SETAC concluded that there is no scientific basis for such temperature corrections:

"In general it is not sound scientific practice to use the Arrhenius equation (Q10 rule) to quantitatively correct biodegradation data to a common environmental temperature (e.g. 10 °C). This is due to the fact that microbial populations are generally adapted to prevailing environmental conditions, and the transformations that they perform cannot be scaled directly with temperature as is the case for abiotic reactions"<sup>5</sup>.

### **3. Difficult to link data from sediment cores with biodegradation**

It is very difficult to link levels found in the environment, especially those found in sediment, to biodegradation half-life time values since the corresponding input levels (initial concentrations) are unknown. Levels in sediment cores represent sinks where suspended particulate matter of former years was deposited. In deeper sediment layers no biodegradation (also no anaerobic biodegradation) is expected to occur since these layers are lacking biologically active microorganisms.

The fact that HBCD can be detected in sediment samples at variable levels can, therefore, not be considered as a direct indication for the lack or low level of HBCD biodegradation under environmental conditions. These levels, partially linked to historical high emissions, have to be seen as a result of complex environmental distribution mechanisms which at the end are characterized by sedimentation of organic matter to which HBCD is adsorbed.

### **4. Recent data indicate decreasing trends**

Recent monitoring data from harbour porpoises which were collected after 2003 by *Law et al.* (2008) provide a first indication for a possible fast response of biota levels to a decrease of HBCD emissions.

The findings of the recently published follow-up work can be summarized as follows:

- Data from 138 porpoises collected between 2003 and 2006 show a statistically significant decrease in HBCD concentrations in Harbour porpoises sampled along UK coasts after 2003.
- The most significant decrease (from median 1860 to 487 ug/kg lipid weight) was observed between 2003 and 2004.
- A possible contributory factor to the observed decrease is the closure in 2003 of an HBCD manufacturing plant in NE England, which had considerable emissions.
- The relatively rapid decrease in HBCD tissue concentrations from 2003 onward may suggest a relatively quick response of the food chain to changes in HBCD emissions.

The SCHER committee, which reviewed at that time the yet unpublished data, recommended waiting for the complete set of data to become available before making a final conclusion on the possible persistence behaviour of HBCD in the environment.

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<sup>5</sup> Society of Environmental Toxicology and Chemistry ([www.setac.org](http://www.setac.org)) - SETAC /Pellston WS: Klecka GM, Muir DCG. 2008. Science-Based Guidance and Framework for the Evaluation and Identification of PBTs and POPs, Summary of the Pellston Workshop on 28 January – 1 February 2008, Pensacola, Florida USA".