

## HBCD Industry Group and EUMEPS comments to the revision of low POP content value brackets for Hexabromocyclododecane (HBCD) in waste

Brussels, October 2022

### 1. Introduction and executive summary

The HBCD Industry Group (IG) would like to provide comments related to the review of the provisional low persistent organic pollutant content (LPC) values in the technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (POP). In particular, the HBCD IG would like to address the value brackets of [or 500 mg/kg] for HBCD as added during the Conference of the Parties (COP) meetings in June 2022. **The European HBCD IG is of the opinion that for HBCD any value below 500 mg/kg is under the present circumstances not workable. Furthermore, there exists no validated analytical method to measure HBCD at a Low POP Content of 500 mg/kg.**

The following assessment provides a number of environmental, health and socio-economic impact effects resulting from a reduction of the Low POP Content related to Polystyrene (PS) foams<sup>1</sup> and addresses both destruction and recovery options.

- There is no information available to demonstrate possible harm caused by the current 1000 mg/kg low POP content. HBCD, being firmly incorporated in the stable polystyrene matrix, is not readily if at all released from PS foam waste. Hence the impact on the environment and on human health is negligible<sup>2,3</sup>.
- Up until now accepted standardized analytical methods for the measurement of HBCD are validated for concentrations at and above 1000 mg/kg<sup>4</sup>. In the absence of any field-tested tools conformity with specified (concentration) limits cannot be guaranteed and, as a consequence, failure to comply with the regulatory demands will expose operators to fines and eventually business cessation.
- In the absence of a validated analytical method to detect HBCD levels at or below 500 mg/kg, collection and sorting facilities would likely adopt an approach where, in default of other options, much more PS foams would become diverted to landfill.

### 2. Addressing enforcement and analytical methods for HBCD in Polystyrene Foam waste

The analytical methodologies and tools to measure HBCD in a PS foam matrix represent a prerequisite for successful compliance and enforcement of the low POP content values.

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<sup>1</sup>Polystyrene (PS) foams represent a unique family of products and articles since their applications can be broadly split into packaging and building & construction, and hence deliver separate waste streams. Packaging waste nowadays does not contain intentionally added HBCD anymore. Demolition waste may contain HBCD largely in excess of 1000 mg/kg. It follows that demolition waste will primarily end up in Advanced Solid Waste Incineration (ASWI), the viability of the destruction of HBCD having been demonstrated in a large-scale incineration trial at the Würzburg incinerator. Packaging waste can however be recycled, the only concern being potential unintentional (cross) contamination with HBCD containing foams.

<sup>2</sup>ECHA 'Data on Manufacture, Import, Export, Uses and Release of HBCD as well as information on potential alternatives to its use', 2009 <https://www.informea.org/en/data-manufacture-import-export-uses-and-releases-hbccd-well-information-potential-alternatives-its>

<sup>3</sup>PlasticsEurope, Exiba, EFRA, CEFIC: 'HBCD Hexabromocyclododecane in Polystyrene Foams Product Safety Assessment' 2016 (submitted to UNEP Secretariat together with this paper)

<sup>4</sup>General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants available at:

[http://www.basel.int/TheConvention/OpenendedWorkingGroup\(OEWG\)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx](http://www.basel.int/TheConvention/OpenendedWorkingGroup(OEWG)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx)  
(UNEP/CHW/OEWG.12/INF/7/Rev.2 - information document section)

Today the accepted standardized method is validated for concentrations at and above 1000 mg/kg<sup>5</sup>.

Based on the experience gained over the past 5-10 years, the HBCD IG has prepared relevant documentation that displays more in detail the analytical boundaries and constraints related to the waste management of HBCD containing foams. This documentation is meant to meet the standards included in the General Technical Guidelines on the Environmentally Sound Management of Wastes consisting, containing or contaminated with POPs<sup>6</sup> and it is being shared with the BRS Secretariat and interested Parties.

Reducing the low POP content for HBCD will neither reduce uncontrolled waste disposal nor help the enforcement of national regulations (following the COP decisions). Therefore, a low POP content of 500 mg/kg will not bring any significant improved health and environmental performance. On the contrary, general learnings from waste management have provided evidence that unrealistically stringent requirements will undermine the commitment and the support by engaged stakeholders and will promote illegal evasive actions.

### 3. Environmental impact of Polystyrene Foam waste and related economic considerations

HBCD being firmly incorporated in the stable polystyrene matrix, it is not readily – if at all – released from PS foam waste to the environment, be it to air, water or soil, and hence the environmental impact will be minimal<sup>7</sup>. It follows that the controlled dismantling, transport or disposal of the waste foams will not have negative impacts for the environment<sup>8</sup>.

For Europe, it has been shown that the recovery PS foams can bring about significant energy savings compared to the manufacturing from virgin raw materials, whilst saving around 50% CO<sub>2</sub> emissions compared to sending them for advanced solid waste incineration. The adoption of a low POP content at or below 500 mg/kg is likely to result in more PS foam waste containing HBCD to be diverted to landfill<sup>9</sup>. Indeed, there is the concern that limited incineration capacities and raising costs of depositing waste in a landfill would pave the way for more uncontrolled and non-compliant disposal in countries having a restricted level of waste management capabilities, whilst considering among others the absence of sufficient advanced solid waste incinerator (ASWI) capacities<sup>10</sup>.

A reduction of the low POP content for HBCD to or below 500 mg/kg can have the undesired effect of interfering with waste management operations in place today, when the availability of secondary raw materials is at stake. This can result in operational capacity reductions and

<sup>5</sup>General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants available at:

[http://www.basel.int/TheConvention/OpenedWorkingGroup\(OEWG\)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx](http://www.basel.int/TheConvention/OpenedWorkingGroup(OEWG)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx)

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<sup>6</sup>Available at: [http://www.basel.int/TheConvention/OpenedWorkingGroup\(OEWG\)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx](http://www.basel.int/TheConvention/OpenedWorkingGroup(OEWG)/Meetings/OEWG12/Overview/tabid/8264/Default.aspx) (UNEP/CHW/OEWG.12/INF/7/Rev.2 - information document section)

<sup>7</sup>ECHA (ibid); and PlasticsEurope, Exiba, EFRA, CEFIC (ibid).

<sup>8</sup>This was also confirmed by the implementation of the German POP Waste Monitoring Ordinance (POP-Abfall-Überwachungs Verordnung) that entered into force in July 2017, Available at: [https://www.gesetze-im-internet.de/pop-abfall\\_berwv/BJNR264410017.html](https://www.gesetze-im-internet.de/pop-abfall_berwv/BJNR264410017.html)

<sup>9</sup>EU Regulatory Scrutiny Board Opinion, SEC(2021) 379 final, "Potential additional waste management costs for demolition operators and construction / demolition contractors resulting from diversion of 0.2% (640,000 t) of all C&D waste from non-hazardous waste landfill to hazardous waste landfill due to contaminates with EPS/XPS containing HBCD".

<sup>10</sup>For example, in Europe, limited to a 2% load by weight of PS foam material as shown in the Würzburg trials - 2% by weight corresponds to more than 20% by volume and is the maximum load that still guarantees undisturbed operation of the incinerator in Mark, F.E., Vehlou, J., Dresch, H., Dima, B., Gruttner, W., Horn, J. Destruction of the flame retardant hexabromocyclododecane in a full-scale municipal solid waste incinerator. Waste Management & Research. 2015, 33, 165-174.

investment uncertainties due to imprecise amounts of available feedstock, hampering among others the achievement of circular solutions.

#### **4. Addressing Parties' concerns on transboundary shipments**

Countries that have limited capacity to detect or treat POP-containing waste at the national level are prone to rely on strict international standards (i.e. advocating for stricter low POP content values) to ensure that POP-containing wastes do not enter their jurisdictions in the first place. Conversely to what it is thought, the lack of capacity to analyse waste makes it necessary to establish practical limits which will allow the easy and cost-effective identification of HBCD. A Low POP Content value for HBCD at or below 500 mg/kg will not be more effective as such a limit would capture the same amount of waste, but would make the identification of that waste unnecessarily costly and complex and hence vulnerable to illicit evasive actions.

#### **5. Conclusion**

In essence, a low POP content for HBCD of or below 500 mg/kg fails to satisfy the basic technical, environmental, and commercial requirements needed to meet compliance and enforcement obligations specified by entrepreneurial and business planning security.

Any low POP content value lower than 500 mg/kg is prone to pose significant challenges for the polystyrene value chain and creating a negative precedent for the whole of plastics waste management industry resulting in net negative environmental impacts. Such impacts should be carefully considered.

#### **6. About the industry sector**

This paper sets out the views of relevant and engaged industry sectors. The HBCD Industry Group gathers former producers of HBCD (BSEF) and producers of polystyrene insulation foam, the EPS and XPS (Exiba) sectors of the Styrenics Product Group, under the auspices of PlasticsEurope. Its primary mission is to develop guidance in the management of the end of life of the HBCD legacy substance, and to provide support for the safe, efficient, and quantitative elimination of HBCD from the value chain. This paper is co-signed by the association for European Manufacturers of Expanded Polystyrene (EUMEPS).