

# Pentabromobenzyl acrylate (PBB-Acr)

(CAS numbers: e.g. 59447-55-1, EC number: 261-767-7

/ Entry number in HELCOM list of substances of concern: 19)

General sectors: Industry and commercial products

DRIVERS

ACTIVITIES

PRESSURES

STATE

IMPACTS

## Why a HELCOM concern?

### Main evidence

**P** Approximately **41 - 660 kg of PBB-Acr** are estimated to enter the Baltic Sea every year via rivers (Gustavsson et al, 2018<sup>1</sup>). Additional inputs may be expected via the atmospheric deposition route<sup>2</sup>. Given that the substance is **suspect as very persistent and very toxic**<sup>3</sup>, current inputs are likely significant, in terms of risk they pose for the Baltic Sea and its ecosystem services. The data used for the riverine inputs estimation concerns only measurements in the proximity of river mouths. They originate from one-grab samples from the 23 rivers covering the whole latitudinal range of Sweden. And they have been extrapolated to the total riverine flow to Baltic Sea.

**I** Current inputs to the Baltic Sea indicate potential negative impacts at least on pelagic biota.

### Overall assessment

When assessing current levels in the Baltic Sea (no relevant measurement data), current inputs, and the severity of the relevant toxicity mechanism, PBB-Acr scores **30-94/100** in the scale established for assessing the overall risk for impacts/threat for the Baltic Sea, where 50 indicates concern, 100 extreme risk, and the width of the span outlines the uncertainty in the assessment.

## Facts relevant for management considerations

### Causal chain and pathways

**A** The EU REACH-registered volume is 100 - 1,000 t/y, however it appears to relate with registration corresponding to imported polymer<sup>4</sup>. According to the literature, PBB-Acr is an alternative flame retardant that has recently replaced legacy ones (such as PBDEs)<sup>5</sup>.

**S ?** *In order to further improve the evaluation of the risk, relevant aspects to consider are a review of the relevant toxicity thresholds (expected relevant matrices) and marine monitoring or modelling for predicted environmental concentrations based on estimated inputs. Furthermore, it would be useful to assess possible inputs via atmospheric deposition. As well as clarify the situation on the market / form of substance in the imported polymers / accordingly potential for release from them.*

### Relevant policies (existing or planned measures)

**M**

## References:

1. 2. 3. 4. 5.

[Note: Listing of detailed references will be provided in an upcoming update of the fact sheet – for a listing of the most common references among the different substances see the section at the end of the consolidated document which includes all the fact sheets]