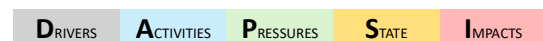


Heptachlor and its degradation products

(CAS numbers: e.g. 76-44-8, 1024-57-3, 28044-83-9, 1024-57-3, EC numbers: e.g. 200-962-3, 213-831-0, 634-785-1, 213-831-0

/ Entry number in HELCOM list of priority substances: 19

General sectors:
Legacy pesticide



Why a HELCOM priority?

Main evidence

S Concentrations of Heptachlor exceed the applied threshold value in **5** of the 6 examined areas (assessment units) of the Baltic Sea. The threshold is exceeded in both coastal and off-shore areas (**2/2** assessed off-shore areas). In these 5 areas, on average **46%** of the assessable samples in **biota** exceed the threshold value. This is based on monitoring data for the period 2015-2024 available in national and international databases¹. A total number of 73 data points were possible to evaluate for Heptachlor.

By further considering how much above or below the threshold each concentration is, and how often the substance is detected, Heptachlor scores **7.6/10** (confidence range: **7.3 – 7.9**) in the scale established when assessing the criticality/significance of current levels in the Baltic Sea pose, where 5 indicates concern and 10 extreme risk, and the range reflects the level of reliability and representativeness of concentrations and the thresholds.

Concentrations of cis-heptachlorepoxide and trans-heptachlorepoxide also frequently exceed their respective threshold value. And water is another matrix, beyond biota, where exceedances have been observed. The threshold values for all substances in the group, for biota, were acquired from the EC proposed Directive amending WFD and EQSD².

I Current levels in the Baltic Sea indicate potential negative impacts on pelagic biota, top predators such as mammals and birds, and humans via consumption of seafood.

Supporting evidence

P Approximately **15 – 210 kg of Heptachlor and its degradation products** are estimated to enter the Baltic Sea every year, mainly via rivers (WATERBASE³). Historical inputs have been considerably higher. Given that the substance is **very persistent, very bioaccumulative, and extremely toxic**⁴, even current inputs are considered as likely significant, in terms of risk they pose for the Baltic Sea and its ecosystem services. As mentioned above, levels in Baltic Sea have already exceeded thresholds, due not only to current but also the historical inputs.

I Heptachlor and its degradation products are considered of **concerning mode of toxicity**: for example Heptachlor is a possible carcinogen⁵, as well as neuroactive⁶. Neuroactive substances cause sublethal neurological impacts like disorientation or altered behaviour that can affect feeding success, predator avoidance, and overall survival.

Overall assessment

When assessing current levels in the Baltic Sea, current inputs, and the severity of the relevant toxicity mechanism, Heptachlor and its degradation products score **69-81/100** 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. Both Heptachlor and its degradation product heptachlor epoxide have hazardous properties and exhibit concerning environmental occurrence profiles, and they have been grouped in one entry.

Facts relevant for management considerations

Current causes, pathways

A No known on-going activities causing emissions.

P Its high persistence, and earlier widespread use have meant that residues of this group are widespread⁷. That likely explains the measured riverine inputs.

Relevant policies (existing or planned measures)

- M (on A/P)**
- Listed under **Stockholm Convention** on POPs (signed by all HELCOM Contracting Parties) – Annex A (elimination of manufacture and use, with specific exemptions possible) – accordingly **EU POPs Regulation. No acceptable purposes or exemptions reported** by any HELCOM Contracting Party. Therefore considered as banned.
 - Listed as a priority hazardous substance under the **EU WFD** and its update proposal. The EQSD update proposal also includes an EQS for total of active substances in pesticides, including their relevant metabolites, degradation and reaction products.

References:

1. 2. 3. 4. 5. 6. 7.

[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]

| * considering that there were also inconclusive non-detections (in terms of exceedance, due to a relatively high limit of detection), it is possible that the actual average frequency of exceedance in these areas is somewhat lower, but in any case >15%.