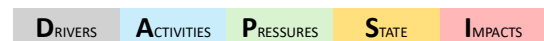


Cypermethrin

(CAS number: e.g. 52315-07-8, EC number: 257-842-9)
/ Entry number in HELCOM list of priority substances: 12)

General sectors: Pesticide,
pharmaceutical, biocide, off-
shore (aquaculture?)



Why a HELCOM priority?

Main evidence

S Concentrations of Cypermethrin exceed the applied threshold value in **2** of the 8 examined areas (assessment units) of the Baltic Sea. The threshold is exceeded in both coastal and off-shore areas (1/3 assessed off-shore areas). In these 2 areas, on average **13%** of the assessable samples in **water** 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 173 data points were possible to evaluate for Cypermethrin.

By further considering how much above or below the threshold each concentration is, and how often the substance is detected, Cypermethrin scores **6.3/10** (confidence range: **6.1 – 6.8**) 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.

The threshold value for Cypermethrin, for water, was acquired from the EC proposed Directive amending WFD and EQSD².

I Current levels in the Baltic Sea indicate potential negative impacts on pelagic biota.

Supporting evidence

P Approximately **2-9 kg of Cypermethrin** are estimated to enter the Baltic Sea every year, mainly rivers (WATERBASE³). Additional inputs may be expected from direct runoff from land. Given that the substance is **persistent and extremely toxic**⁴ (according to the EU WFD/EQSD update proposal, it also tends to accumulate in sediment and/or biota⁵), this amount of inputs even though in absolute terms low is 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 Cypermethrin is considered to have a concerning **mode of toxicity**, as it is 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, Cypermethrin scores **59-69/100** 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 substance is authorized as pesticide in five from the Contracting Parties (CPs) which are members of the EU⁶. According to literature, it is used as insecticide in large-scale commercial agricultural applications⁷. Furthermore, the substance is authorized for use in biocide products in seven from the CPs which are members of the EU (expert information about Sweden: authorized for local use). Biocide-approved applications are as insecticide, acaricide, and disinfectant⁸. According to literature, there are biocide applications in consumer products for domestic purposes⁹, to be confirmed with the EU BPR data. In addition, it is relevant as veterinary pharmaceutical. For instance, depending on the country it is allowed for applications such as pour-on solution for sheep and/or cattle, external use on horses, dogs, and cats, or as an ear tag for cattle¹⁰. Use in aquaculture is plausible, however it is not authorized for such use at least in Denmark, Finland, Germany, Latvia, Lithuania, or Poland¹¹.

P Based on available estimations^{3,7}, rivers are the main (quantified) source of the total estimated inputs of 2-9 kg/y, with WWTPs contributing to a small extent only (in the order of 1 kg/y, both direct inputs and via rivers). As mentioned above, emissions due to direct runoff to the sea from agricultural use, and any use in mariculture, are possible as well.

Relevant policies (existing or planned measures)

- M (on A/P)**
- Listed as a priority substance under the **EU WFD** (and its update proposal) – including respective national **Programmes of Measures for this**. The EQSD update proposal also includes an EQS for total of active substances in pesticides, including their relevant metabolites, degradation and reaction products.
 - Under the EU Regulation 1107/2009 concerning the placing of **plant protection products on the market, it is candidate for substitution**, on the basis of non-active isomers. Under the EU Sustainable Use of Pesticides Directive (2009/128/EC), Member States of the EU shall adopt **National Action Plans** to set up their quantitative objectives, targets, measures and timetables to reduce risks and impacts of pesticide use and to encourage the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on the use of pesticides. Under the EU BPR Regulation, it appears that for the product types relevant for the CPs it is not candidate for substitution (instead it is under assessment towards possible status candidate for substitution for a different product type: wood preservative).

References:

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.

[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]