Nonanedioic acid (azelaic acid)

(CAS numbers: e.g. 123-99-9, EC number: 204-669-1 / Entry number in HELCOM list of substances of concern: 17)

General sectors: Industry and commercial products, personal care product

DRIVERS | ACTIVITIES | PRESSURES | STATE | IMPACTS

Why a HELCOM concern?

Main evidence

S Concentrations of a substance tentatively identified as Nonanedioic acid exceed the applied threshold value in **13** of the 23 examined areas (assessment units) of the Baltic Sea. The threshold is exceeded in both coastal and off-shore areas (**2**/4 assessed off-shore areas). In these 22 areas, on average **68%** of the assessible samples in **biota** exceed the threshold value. This is based on suspect screening data from the project PreEMPT[1]. A total number of 100 data points were possible to evaluate for this substance.

By further considering how much above or below the threshold each concentration is, and how often the substance is detected, Nonanedioic acid scores **5.5/10** (confidence range: **4.8 – 8.1**) 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 Nonanedioic acid, in biota, was acquired from the NORMAN Network ecotoxicology database[2].

I Current levels in the Baltic Sea indicate potential negative impacts on pelagic biota and/or top predators such as mammals and birds.

Supporting evidence

I Nonanedioic acid is considered to have a concerning **mode of toxicity**, as it is inhibits protein biosynthesis[3].

Overall assessment

When assessing current levels in the Baltic Sea, current inputs, and the severity of the relevant toxicity mechanism, Nonanedioic acid scores **48-81/100** 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.

Facts relevant for management considerations

Causal chain and pathways

A The EU REACH registered volume for Nonanedioic acid is 1,000 - 10,000 t/y[4]. Registered uses include professional uses (medical device, component of cleaning and maintenance products) and industrial uses (of facade / surface cleaning products, application of coatings or inks, construction chemicals (outdoor), laundry products, metal treatment products, vehicle cleaning products, leather finishing, as intermediate, etc.)[5]. According to the SPIN database, for the period 2017-2021, in Sweden and Denmark the substance was reported in total amounts up to tonnage bands of 150 – 15,000 t/y and 0 88 kg/y respectively[6]. Furthermore, it is authorised in the EU for use in personal care products with the following functions: buffering, fragrance[7].

S **?** *In order to further improve the evaluation of the risk, the first aspect to consider is identity confirmation (PreEMPT samples). If identity is confirmed, then a furhter aspect to consider is a review of the relevant toxicity threshold (biota).*

Relevant policies (existing or planned measures)

M (on A/P)

- It is covered by an **Assessment of Regulatory Needs, prepared by the ECHA, on linear aliphatic dicarboxylic acids (C≥8) and their salts**[8].

References:

1. 2. 3. 4. 5. 6. 7. 8.

[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]