



**DMDTC: Determination of biodegradability and nitrification inhibition by dimethyldithiocarbamate (DMDTC) as well as possible influencing factors on these processes in real systems**

In the districts of Freiburg and Karlsruhe as well as in Switzerland in the canton of Basel-Land, four considerable fish deaths have taken place in the past two years, which were presumably caused by Dimethyldithiocarbamate (DMDTC). In Germany, this substance is mainly used as a precipitating agent in the wastewater treatment of metal processing companies (electroplating plants and printed circuit board manufacturers) and presumably causes disturbances in the nitrification stages of municipal wastewater treatment plants, which leads to temporarily significantly increased discharge concentrations of ammonium and nitrite and consequently to increased oxygen depletion in the receiving waters. In addition, DMDTC can penetrate directly into water bodies, where it develops its toxic effects at all trophic levels. Within the project, the reasons for these sporadic but repeated and massive incidents in the nitrification stages of wastewater treatment plants are to be completely identified in order to be able to take effective precautionary and protective measures for the discharge of DMDTC-containing commercial and industrial wastewater in the future. This is to take place in a two-stage project.

In a first phase, the conceivable influencing variables which can contribute to the nitrification-inhibiting effect of the DMDTC and its degradability or elimination under wastewater treatment plant conditions will be systematically checked, quantified and evaluated by means of comprehensive test series and static short-term tests.

In a subsequent second phase, the results obtained will be examined under realistic conditions in continuously operated model wastewater treatment plants, the relevant boundary conditions will be narrowed down further and typical critical and non-critical loading situations will be simulated. Ultimately, the project serves to derive effective precautionary and protective measures from the knowledge of the behaviour of DMDTC with regard to degradation and nitrification inhibition. This applies in particular to any necessary in-house pre-treatment and/or specifications for an unproblematic and safe discharge regime with regard to concentrations and loads for wastewater containing DMDTC.

Funding Institution:
Ministerium für Umwelt, Klima und Energiewirtschaft Baden-Württemberg
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Duration
12/2016 - 05/2017