



Cleaning of Mercury and other Heavy Metals from Contaminated Waters

Background

Toxic heavy metals, and especially Mercury (Hg) continues to threaten the health of humans and other living organisms. In Sweden, a majority of lakes have far too high Mercury levels rendering the waters toxic and the fish unsafe to eat. There is a vast number of contaminated sites, mainly old industrial sites, where heavy metals risk leaking out to natural waters and groundwater. In addition, there is a strong demand from several industries to develop new and improved strategies to remove Mercury from industrial process waste. This project aims at developing a new and very promising method for heavy metal removal in these examples. The method has been developed in the group of Chemical Physics at Chalmers and is being patented at the moment. The project will be carried out in collaboration with the division of Industrial Materials Recycling and a newly formed project at the Chalmers School of Entrepreneurship, with support from Chalmers Ventures and Chalmers Innovation Office. The goal of the project is to use the method to remove Mercury and other heavy metals from contaminated waters on a large scale.



Fig1: A possibly contaminated lake.

Tasks

The candidate will perform experimental work to optimize and further understand the processes involved in the novel heavy metal removal method.

Techniques

Electrochemistry and advanced analysis and characterization methods will be used throughout the project. These includes: Inductively coupled plasma mass spectrometry (ICP-MS), X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), Scanning electron microscope (SEM), Energy dispersive X-ray (EDX).

Qualifications

Preferable background: studies at M.Sc. level in Physics, Chemistry, Nanotechnology or similar.

Starting Date

Upon agreement

Contacts and Further Information

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