

The steel mill of tomorrow? – Electrochemical iron oxide reduction (bachelor's thesis)

Topic description

In the search for a green, more energy-efficient alternative to current iron production in blast furnaces, we are looking for liquids in which iron oxides dissolve well and can then be electrochemically separated as iron.

The aim of this work is to understand the influence of foreign particles on the separation efficiency of iron.

Planned implementation and equipment/tools used

The experiments are to be carried out using a three-electrode setup on a potentiostat. First, iron oxides are to be dissolved in an electrolyte. During the subsequent electrochemical deposition of iron from the solution, the influences of various experimental parameters on the deposition rate and energy consumption will be investigated. Through the systematic addition of foreign particles, their influence on the deposition of iron and its efficiency will then be analyzed.

Prior knowledge

No special prior knowledge is required, but an interest in (electro-)chemistry would be helpful.

