



Master Thesis proposal

Title: Determination of parameters for Mo and Zn separation from alkaline media using solvent extraction techniques.

Background: Steel making dust is a by-product of steel making process. Major elements present in those dusts are Fe and Zn. The presence of other elements in the dust depends on the type of steel being produced. Stainless steel manufacturing involves the application of several alloying components including the refractory metals (RMs) such as Mo, W and Nb, etc. which in turn, will be present in the steel making dust. RMs are, due to their specific properties and application in the high-tech products, regarded as critical elements for the European Union (EU). Our previous research related to recovery of Zn from the dusts showed the presence of quite high concentration of Mo in two of the studied samples and also presence of W and V. The goal of the project is to study the possibilities of Mo (W and V if present) recovery using alkaline leaching, with the emphasis on environmentally friendly approach.

Research task: *Selective separation of Mo from Zn.* Solvent extraction will be examined to recover Mo separately from Zn. Parameters such as: extractant concentration, organic to aqueous ratio, temperature and metal concentration will be tested to selectively recover and separate Mo and other refractory metals. McCabe-Thiele diagrams (modelling tool) will be constructed to determine parameters for process optimization.

Contact person: Assistant professor Martina Petranikova, Industrial Materials Recycling, Department of Chemistry and Chemical Engineering,

Email: martina.petranikova@chalmers.se