Bachelor’s Thesis:

Literature Review on Scrap Recycling Technologies

Background

The development of sustainable cars depends largely on the materials used in vehicle and component production. One current approach is the use of secondary materials from post-consumer scrap. Metals in particular are known for their excellent recyclability, which is why vehicles today can achieve recycling rates of over 85%. In order to understand current end-of-life vehicle (ELV) and metal-containing scrap recycling, current recycling technologies must be analyzed. Since ELVs are not exclusively recycled today, the German recycling industry in general must be analyzed.

Research Task

A literature review on existing recycling processes for shredder residues and other metal-containing scrap will be carried out. Different recycling technologies need to be presented in detail and compared to each other. The main objective is to understand, how the current recycling infrastructure is structured, which processes are involved and which material flows exist. Based on the researched processes, a MFA model of a recycling system is to be developed.

- Literature research on recycling technologies for metal-containing scrap, especially from ELVs
- Special focus on steel, aluminum, and copper
- MFA modeling of a recycling system including researched recycling processes

Requirements

- Research skills and ability to work independently
- Being familiar with literature review and MFA methodology
- Previous knowledge in materials science
- Being enrolled at TUM SoM or TUM SoLS or TUMCS

Please send your application, covering a short motivation letter, your CV and a transcript of records, to dominik.reichert@tum.de. In case of any further questions, please use the contact information provided below.

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