

Master thesis proposal

The valorization of lignin: Future market and possibilities

Background:

Lignin is the most abundant natural source of aromatics. It is found in the cell walls of trees and plants where it provides hydrophobicity, antimicrobial barrier and stiffness. Lignin can be recovered from the trees during pulping or in other processes and it can be used in a large range of applications, including adhesives, emulsifiers, carbon fibres and biofuels. However, lignin is today most often combusted for internal energy use at pulp mills and there is little known on how the market for lignin will develop, both in terms of supply and demand.

Project description:

The purpose of this project is to explore future possible market scenarios for lignin. The main tasks of this project are to evaluate:

- What determines lignin's market price?
- What are the possible future prominent applications for lignin?
- What are the possible future market prices for lignin?

The results will be a basis for future research on lignin's life cycle environmental impacts, which to some extent will rely on the future demand and market price. The project is strongly connected to the LIBRE research project on the production of lignin-based carbon-fibres for composites.

The project will be conducted at Environmental Systems Analysis, Chalmers, during the spring 2019.

Qualifications

This project could be done by one (or two) students with a background in industrial engineering or another relevant field and with an interest in the bioeconomy, in specific the market development for bio-based products.

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