Master Thesis Work:

Upscaling of lignin-based polyesters

Background & objective
Lignin-based polyesters with a biodegradable property is an interesting future product developed by partners in the LignoCity Initiative. When a suitable production method is defined in detail and a business opportunity is secured we need to have larger scale production up running.

This master thesis work will focus the work usually made by consultants to create a first design of a production line. However, we want to take this opportunity to instead form a master thesis work, as a pre-project to a commercial installation. A production line is in this case planned to be built within the LignoCity Initiative in Bäckhammar. The objective is to design the layout of the production line, create and compare different alternatives, make cost calculations and predict the hurdles and advantages/drawbacks (make a SWOT analysis) for the different options to build such line. It is expected to select the best alternative and in more detail create a decision material from which it is possible to act on an investment.

The scale and more detailed specifications will be defined by the supervisors. The work includes collecting detailed information from many different sources. A lot of different aspects are to be taken into consideration from the foot-print of the upscaling to a detailed plan on how to put the different unit operations together into a production line.

Candidate
As a candidate for this Master Thesis work you should preferably like independent and creative work where you collect a lot of information by different contacts with the established actors in the field. A suitable background is polymer technology or chemical technology with specific interest in equipment used in production where polymers are processed. The work is planned for Q1 and Q2 2021.

Location
The LignoCIty Initiative in Bäckhammar – cooperation with Karlstad University, Paper Province and RISE Bioeconomy.

Contact persons
The LignoCity Initiative:

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Operative supervisors will be discussed and decided together with the master student.