



MANUFACTURING OF ADVANCED AND INNOVATIVE BIO-AROMATICS FROM LIGNOCELLULOSIC FEEDSTOCK BY APPLICATION OF THE LIGNIN-FIRST APPROACH TO RESIDUAL WASTE WOOD AND FLAX SHIVES

Introduction

Since climate change and the instability of the supply of fossil fuels are an ever increasing concern in modern society, the use of renewable resources for the production of (bio-)chemicals can contribute heavily to the creation of a more sustainable environment. Nowadays, the available lignin biomass is almost solely used for energy creating purposes. On top of that, the market and demand for (fossil based) aromatic products is continuously growing and expanding in such a way that shortage might present itself in the near future. Therefore, biobased aromatics present a solution to overcome this shortage (and make these compounds significantly less taxing for the environment).

Objectives

Starting from residual waste wood and flax shives, the production of 100% bio-aromatic lignin oligomers. Special attention is given to the preparation method of the oligomers to maintain a high level of functionality. These oligomers in turn will be modified by the different partners to be used in several different chemical applications. Thereby, the large variety of chemical moieties already present in different bio-molecules can be fully utilized and explored over a large variety of functionalization. These new biobased compounds will be employed for dispersion agents and emulsifiers, resins, foundry, refractory and wood modification, wood adhesives, UV-stabilizers and flavours.

ChemStream

ChemStream has expertise in the development of (nano) emulsions and dispersions with (tailor made) dispersing agents, emulsifiers and encapsulating agents. With this project, we hope to expand our portfolio of sustainable (and biodegradable) dispersing agents, emulsifiers and encapsulators. We would like to vary the application of the lignin moieties over a wide area of the "Hansen solubility space". This could be achieved either by chemical or enzymatic modification, which in turn can further compile to the development of green and multifunctional compounds based on lignin oligomers.

Within the MAIA project, ChemStream is responsible for the development and the upscaling of new compounds for use in dispersions or encapsulation. By strategic validation together with potential customers we aim to create new business opportunities.

Project website: <http://catalisti.be/project/maia/>

With support from:

