



Deliverable 2.17

Report on alternative homogeneous catalyst systems for hydrogenation of levulinic acid

Demonstration of solvent and resin production from lignocellulosic biomass via the platform chemical levulinic acid

The project leading to this application has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 720695



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About GreenSolRes

The need to establish economic and sustainable large-scale operations for the conversion of renewable resources to chemical building blocks is becoming increasingly urgent in the context of climate change and depleting fossil fuel reservoirs. Pathways for manufacturing of bio-based fuels and chemicals have been developed but most of them rely on sugar and starch crops for feedstock. GreenSolRes aims at a sustainable and competitive industrial production of the platform chemical levulinic acid (LVA) from non-food lignocellulosic biomass. Further, the conversion of LVA and LVA esters into industry relevant building blocks γ -valerolactone (GVL), 1-methyl-1,4-butanediol (MeBDO) and 2-methyltetrahydrofuran (2-MTHF) will take place by new catalytic methods developed during the course of this project. Finally, these chemicals will be upgraded to solvents and resin monomers for the production of high added value adhesives and consumer products. This project was started in September 2016 and has a duration of five years.

Project Coordinator



Project Office



Consortium



About this document

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Publishable Summary

Selected catalytic systems, based on literature and catalyst screening, were investigated for the multi-step hydrogenation of levulinic acid (LVA) to γ -valerolactone (GVL) and 1-methylbutane-1,4-diol (MeBDO). Ru/Triphos is the only homogeneous catalytic system capable of hydrogenation of LVA to MeBDO via GVL in one pot. Laboratory preparation of sizeable amounts of MeBDO is now available on kg scale, as was demonstrated in the labs of three partners of GreenSolRes.