



Deliverable 5.4

**Report on feedstock potentials of  
the LVA value chain and suitable  
production locations**

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

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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 often rely on sugar and starch crops for feedstock. The European Demonstration project - 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  $\gamma$ -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 to produce high added value adhesives and consumer products.

### Project Coordinator



### Project Office



### Consortium



## About this document

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## Publishable Summary

Currently biobased levulinic acid (LVA) is mostly produced from furfural, starch and sugars, and agricultural residues. Trials with other feedstocks e.g., sludge from paper & pulp industry and scrap paper have also been reported in literature but yet to reach the technology readiness level needed for commercial production. GreenSolRes aims at the utilisation of lignocellulosic feedstocks for LVA production that is non-competing with food. Levulinic acid can be synthesized from C6 and C5 sugars (via furfural route) both present in woody biomass. The forest cover of Europe is expanding since last decades. Round wood production in EU has been increased around 18% between 2000 and 2018. Supply chains of wood in the European market are well established. Thermo-chemical process applied in GreenSolRes LVA production can utilise a range of woody biomass. For this purpose, potential availability and distribution of three lignocellulosic biomass namely wood chips, forestry residues and waste wood in Europe were investigated in this report. Currently, one of the major uses of wood chips as feedstock are for bioenergy generation. Valorization of wood chips, forest residues and waste wood for non-energy purposes e.g., for the production of high value bio-based chemicals has huge potentials in European circular economy. If focusing on feedstock availability and supply chains then north, northeastern and central European regions are favourable locations for building LVA production plants.