



Deliverable 3.9

## **Industrial standard adhesive prototype based on MeBDO-polymer**

**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*



Horizon 2020  
European Union Funding  
for Research & Innovation

## 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 lignocellulosic waste and residues originating from forestry and agricultural sector. Further, the conversion of LVA 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 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

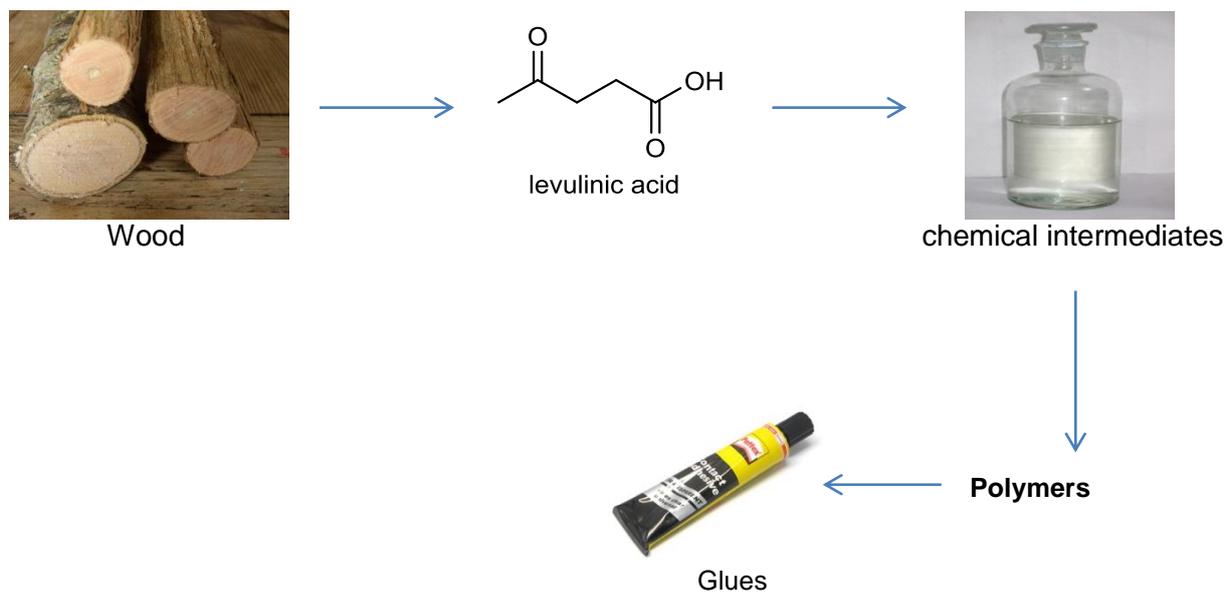


## About this document

Deliverable N°:	3.9
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Responsible beneficiary:	HENKEL
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## Public Summary



**Scheme 1.** General scheme available for public.

The production of levulinic acid from wood, as well as the synthesis of chemicals from levulinic acid are one of the major goals of the GreenSolRes project (first 2 steps in the scheme above). One target of this project was to prepare polymers from these intermediates, which could be used for production of adhesives. Therefore, reactive polyurethane hotmelt adhesives have been prepared as deliverable 3.9. These novel adhesives are made with 100% bio-based polyester polyols with a high content of MeBDO (levulinic acid reaction product). The performance of such adhesives is similar and in relevant criteria even better to existing grades. This type of adhesive typically can be used for furniture, automotive interior lamination, shoe adhesives and electronics. MeBDO based polymers serve as promising building blocks for a bio-based polyurethane chemistry in adhesives but also for other applications.