



Deliverable 3.4

**Industrial standard adhesive
prototype based on GVL-derivative**

**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

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

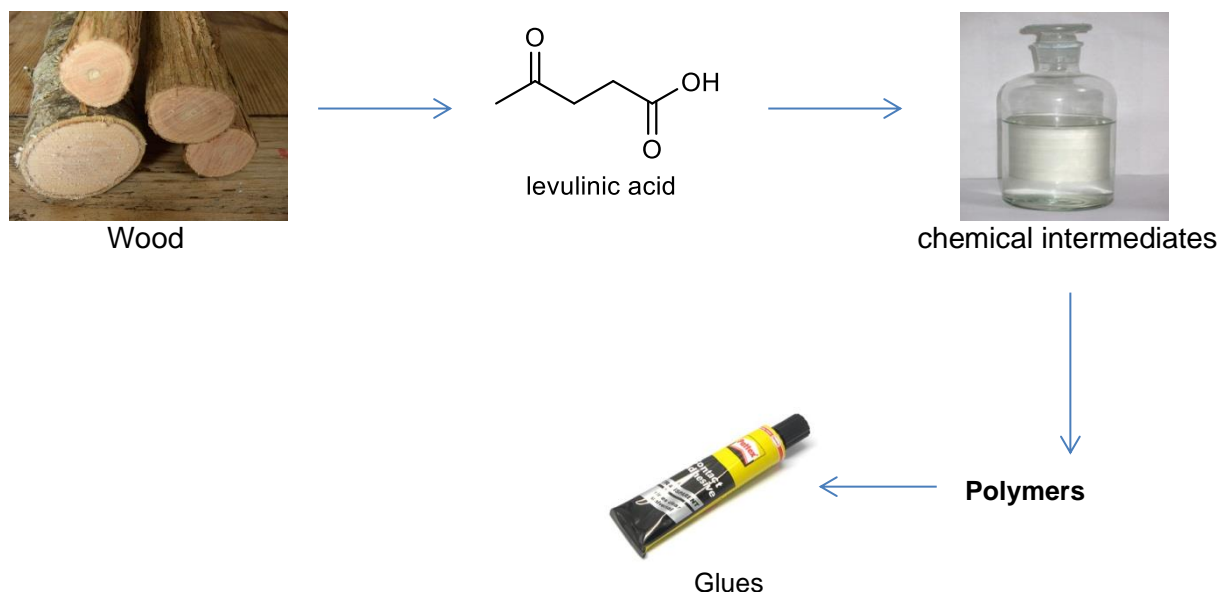


About this document

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PU	Public	
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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 two component (2C) epoxy adhesives have been developed and prepared as deliverable 3.4. These novel adhesives are made with a GVL-derivative (part A). The GVL-derivative was provided by LIKAT as deliverable 3.1. The performance of such adhesives is similar and in relevant criteria even more versatile to existing grades.

This type of adhesive is typically used in structural bonding applications. Market segments are automotive, speciality vehicles, defense and aerospace, construction and railway.

A typical target application can be seen in car repair for structural bonding of metals when requirements in terms of crash behaviours are high (e.g. car body steel with or without e-coat, galvanized steel and aluminium). Coated surfaces are protected against corrosion. Curing can take place at low temperatures or be accelerated using an IR radiator.