



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

Project Fact Sheet



At a Glance

Call: H2020-BBI-PPP-2015-2-1

Project duration: Sept'16 to Aug'21

Total Budget: € 8.54 Million

BBI-JU Contribution: € 7.45 Million

Consortium: 8 partners in AT, BE, DE & NL

Topic: BBI.VC1.D1-2015

Coordinator: RWTH Aachen

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Project Office: SYNCOM

Website: www.greensolres.eu

Project description and implementation

The GreenSolRes project demonstrates the levulinic acid (LVA) value chain of lignocellulosic feedstocks to high-value products in a 3-step approach. First, conversion of lignocellulose to the platform chemical LVA at a demo plant built by RWTH Aachen. Second, LVA hydrogenation to 2-methyltetrahydrofuran, γ -valerolactone and 2-methyl-1,4-butanediol in a highly efficient direct process developed by RWTH Aachen in route 1. These chemicals can be produced in continuous reaction mode with the same hydrogenation catalyst. In parallel, BASF undertakes hydrogenation of Furfural based LVA and LVA Esters to MeBDO in route 2. Third, HENKEL will validate the hydrogenated products as high performance solvents for several adhesive applications and use them as added value building blocks for polymer/sustainable resins development for adhesives. Thus, targeting a substitute for currently used petro-based C4-analogues. The basic engineering of first commercial plants for these steps supports rapid upscaling and exploitation after the project. This will provide industrial scale volumes. Levulinic acid and related products at competitive prices compared to their C4-counterparts will boost the bio-based market as they have a high greenhouse gas (GHG) avoidance of at least 70% and an additional value to society via better health and safety properties. The whole value chain from e.g.

lignocellulosic biomass to consumer products is assessed for environmental sustainability, risks, health and safety to support business case development and market implementation. Figure 1 shows the project duration, milestones and distribution of above-mentioned tasks in six work packages.

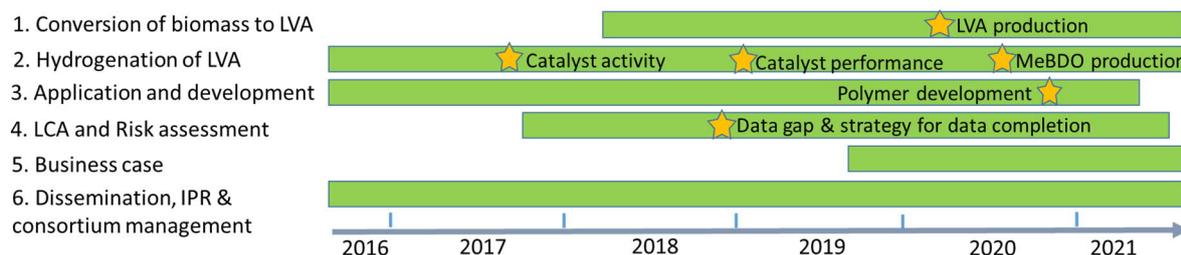


Figure 1: Work programme of GreenSolRes with milestones (stars)

Expected Impacts

The expected impacts of GreenSolRes are:

- Optimized and competitive value chain for bio-based LVA, LVA Esters and down-stream products.
- Increased usage of lignocellulosic residues and side streams for high added value products.
- Exploitation of the sustainability potential of bio-based products from a renewable non-food feedstock.
- Use of the functionalities of the C5-intermediates for novel high value added products.

Consortium partners

1. Rheinisch-Westfaelische Technische Hochschule Aachen, Germany
2. Henkel AG & Co. KGaA , Germany
3. Leibniz-Institut für Katalyse e.V. Rostock, Germany
4. SYNCOM Forschungs-und Entwicklungsberatung GmbH, Germany
5. Hybrid Catalysis B.V., The Netherlands
6. VITO - Vlaamse Instelling voor Technologisch Onderzoek N.V., Belgium
7. BASF SE, Germany
8. Lenzing Aktiengesellschaft, Austria



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