

Low Pressure Hydrogenolysis Catalysts for Bioproduct Upgrading



Goal:

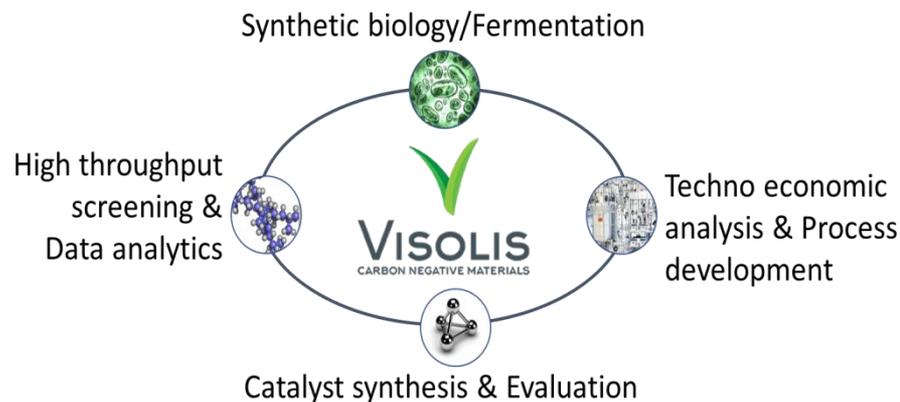
- Develop and demonstrate a heterogeneous catalyst for the selective conversion of the Visolis platform biomolecule to produce monomers at low pressure, aqueous conditions.

Approach:

- High throughput screening for the initial catalyst identification.
- Plug flow reactor (1-2 gm catalyst bed) experiments to down select and demonstrate the catalyst stability.
- Demonstrate the process in 20 gm catalyst bed plug flow reactor and generate data for the techno economic analysis (TEA) and scaled-up unit design.

Impact on the Bioenergy Industry:

- Addressing the potential C₃-C₆ olefins shortage from naphtha cracking by developing alternative path for the high value monomers from biomass derived intermediate.
- Enabling economical bio-fuels by producing high value co-products alongside bio-fuel production using the same starting biomolecule.



ChemCatBio Capabilities Leveraged:

- PNNL's integrated combinatorial catalyst synthesis and discovery setup.
- Suite of heterogeneous catalyst characterization techniques.
- Bench-scale plug flow reactor systems.



ChemCatBio Directed Funding Assistance 2017



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