Lignin Biorefinery Approach using Electrochemical Flow



2

Overview LIBERATE

- H2020-CE-SPIRE-02-2018
- Grant agreement **n° 820735**
- Total Budget: **10.047.735 €**
 - EU contribution: **8.763.489 €**
- Duration: **10/2018 09/2022**
- Coordinator: LEITAT



Concept

 LIBERATE will deliver a pilot scale electrochemical plant to demonstrate the commercial opportunities of converting low cost lignin feedstock in high value biosustainable chemicals.



Liberate

State of the art



LIBERATE Depolymerisation process





Main Objectives

- 1. Kraft lignin \rightarrow 7% yield of Vanillin
- 2. Organosolv lignin \rightarrow > 35% yield of Phenolic derivate
- 3. Cyclohexanol \rightarrow up to 80% of propyl adipic acid
- 4. A biorefinery process:
 - Renewable energy fluctuations without loss in efficiency
 - Better energy efficiency (95% improvement) and Resource efficiency (350% improvement)
 - 29 times less CO₂ than the conventional petrochemical alternatives.



Value Chain



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7

Technology optimisation







Overall project (Technical)



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9

10

Time Line





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