PRESS RELEASE

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PYRAGRAF Advances Energy Applications for Biomass Pyrolysis Products

The PYRAGRAF project is taking significant steps to enhance the valorisation of biomass pyrolysis products through Work Package 5, which focuses on improving the properties of pyrogas and bio-oil and testing their potential as energy carriers in combustion engines and fuel cells.

Although pyrogas and bio-oil possess appreciable energy content, their direct use in energy applications is hindered by contaminants such as particles, tars, sulphur gases, and a high oxygen content. To address these challenges, PYRAGRAF researchers are exploring innovative solutions to upgrade these bio-based fuels.

For pyrogas, the project is investigating the use of biochars derived from biomass pyrolysis - sometimes after pre-activation treatments - to remove contaminants through filtration and adsorption mechanisms.

For bio-oil, hydrodeoxygenation (HDO) is currently being tested as a promising method to reduce its excess oxygen content. This process operates at moderate temperatures and pressures, using hydrogen in the presence of a catalyst. Researchers are optimising different operational parameters to maximise efficiency. Additional approaches under study include blending bio-oil with conventional fuels such as diesel or gasoline and applying extraction procedures to improve fuel quality.

These efforts aim to produce added-value, low-carbon fuels with reduced greenhouse gas emissions, aligning with the European Union's policies on environmental sustainability and the transition to cleaner energy systems.

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Visit project website to learn more

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