



Suppression of Bio-oil Phase Separation

Researchers at Aston University have discovered an innovative technique for suppressing the phase separation of bio-oils, and extracting natural lignins from bark. Aston's Business Partnership Unit is now actively seeking commercial partners to license this novel technique.

The Technology

Aston scientists have realized that the use of certain additives during pyrolysis of lignin-rich biomass results in a bio-oil which does not separate into distinct phases. This technique is especially useful when the pyrolysed biomass consists of wood bark. The additives consist of high boiling point isoparaffinic liquid solvents acting as coolants, and an alcohol acting as a phase separation suppression agent.

Highlights

- Prevents separation of bio-oil into distinct phases
- Increases usefulness of bio-oil
- Improved processability of a wide variety of difficult materials
- Provides environmentally friendly, natural lignins

Background

Synthetic resins such as the formaldehyde family are widely used in the production of manmade wood products, such as plywood and fibre board. Natural lignins are structurally similar to these synthetic resins and provide a sustainable, less toxic alternative. Natural lignins however are difficult to handle due to their separation into aqueous and organic (tar) phases. A faster rate of condensation by the organic phase also reduces its usefulness as a replacement for synthetic resins. During separation, crucial components are lost from the organic phase, further reducing its usefulness.



Intellectual Property Protection

This technology is the subject of several National Phase patent applications:

<i>Title</i>	<i>Patents Pending</i>	<i>Priority Claimed</i>	<i>Our Ref</i>
Biomass Pyrolysis	EP 07789118.2 US 12/369,407 CA 2,660,497	August 16, 2006	PAT-2006-008

Further Information

Further information can be made available and commercial discussions commenced on entering into a non-disclosure agreement.

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