

TASK 34

Pyrolysis of Biomass

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Lignin fast pyrolysis: Results from an international collaboration

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**Prepared by:
Doug Elliott, Task Leader**

**Operating Agent:
Paul Grabowski, USA**

Lignin fast pyrolysis: Results from an international collaboration

DJ Nowakowski, AV Bridgwater, Aston University, Birmingham, UK
DC Elliott*, Pacific Northwest National Laboratory, Richland, Washington, USA
D Meier, vTI - Institute of Wood Technology and Wood Biology, Hamburg, Germany
P de Wild, ECN, The Netherlands

*author to whom correspondence should be addressed

ABSTRACT

An international study of fast pyrolysis of lignin was undertaken. Fourteen laboratories in eight different countries contributed. Two lignin samples were distributed to the laboratories for analysis and bench-scale process testing in fast pyrolysis. Analyses included proximate and ultimate analysis, thermogravimetric analysis, and analytical pyrolysis. The bench-scale test included bubbling fluidized bed reactors and entrained flow systems. A concentrated lignin behaved like a typical biomass, producing a slightly reduced amount of a fairly typical bio-oil, while a purified lignin material was difficult to process in the fast pyrolysis reactors and produced a much lower amount of a different kind of bio-oil. It was concluded that for highly concentrated lignin feedstocks new reactor designs will be required other than the typical fluidized bed fast pyrolysis systems.