



## Summary Minutes

Task 34 Pyrolysis meeting—Richland, Washington, USA  
October 3-4, 2011

*Doug Elliott,  
Task 34 Leader  
gives an update  
on the recent  
Pyrolysis  
meeting*



Figure 1: Left to right: Dietrich Meier, Daniel Nowaskowski, Anja Oasmaa, Doug Elliott and Christian Lindfors.

Task 34 members convened in Richland, Washington, USA, on October 3-4, 2011. At the meeting the agenda included Country Reports, status of the bio-oil viscosity and aging Round Robin results, discussion of advances and needs for Norms and Standards.

### **Agenda of the TASK 34 Meeting**

#### **1. Introductions**

Participating countries were represented by their team leads (Douglas Elliott, US; Anja Oasmaa, Finland; Dietrich Meier, Germany) with additional participants in supporting roles (Alan Zacher, Mariefel Olarte, Iva Tews, Daniel Santosa, Rick Orth, Dan Anderson PNNL US; Christian Lindfors, VTT Finland) and country observers from UK (Daniel

Nowakowski) and Canada (Stefan Mueller, Ensyn and Wenli Duo FPInnovations).

#### **2. Country Reports**

Presented by representatives from US, Finland, Germany, UK and Canada.

#### **3. Bio-oil Round Robin**

The results of the Bio-oil viscosity and aging Round Robin from the 15 participating laboratories were reviewed at the meeting. It was apparent that dynamic viscosity measurements were less consistent compared to kinematic viscosity. The issue could be either the method itself and its application to bio-oil or, more probably, the experience level of the users of the method. The aging

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*"Dynamic viscosity measurements were less consistent compared to kinematic viscosity."*

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method gave consistent results within a given laboratory but was much more variable when comparing between laboratories. The potential reasons included variations in the heating oven and sample/container size. More information will be requested from the participants.

## Norms and Standards

**ASTM**—reported that an expansion of the ASTM burner fuel standard, D7544, is being balloted which will expand the standard to a second category of bio-oil that is higher quality (lower solids and ash). There was discussion about future standards, such as further refined burner fuel or for turbine or diesel fuels.

**REACH**—Status was reviewed. The registration that has been initiated with 34 companies filing includes many slow pyrolysis companies interested in the aqueous condensate. A company has identified itself as interested in being the co-ordinator. The task has agreed to support the effort by

providing input as requested, such as for the chemical safety report. Further, the task believes that the registration should be divided into a slow pyrolysis group and a fast pyrolysis group, along the lines of the two CAS numbers which are now in existence.

**MSDS**—The several available need to be co-ordinated. The Biotox results need to be reviewed to identify fast pyrolysis results that can be used in an improved MSDS. The flash point also needs to be removed from the document with the addition of the information that bio-oil does not support sustained combustion.

## Topics for Group Assignment

**SOTA**—The paper based on the country reports remains under development. The outline has been determined and some input has been received. This should be submitted for publication by the end of the year.

**Analysis and methods development**—The topic of sulfur analysis remains of interest to the task. The draft paper on the subject of analytical methods and results remains incomplete. Nitrogen analysis has been added to the scope of the paper.

**Materials**—Corrosion remains an important topic. Only a limited amount of information is available. VTT in Finland has developed a test rig for making measurements. Oak Ridge National Laboratory in the US has a research project underway with tests of bio-oil from several sources being evaluated with a range of steels. Hydrotreated bio-oil will be added to the study in the near future.

**Next meeting** – It was decided that it will be the week of April 12-16, 2012, in Ottawa, Canada.

**Doug Elliott**

**Task 34 Leader**



The Task meeting included a visit to the PNNL laboratory (*photo middle of top row*) when a demonstration of the fast pyrolysis reactor was given by Daniel Santosa (*photo top left*).



Further demonstrations of the facilities were given by Mariefel Olarte (*photo top right and bottom right*). Alan Zacher explained about high pressure processing (*photo middle bottom row*).

