

TASK 33: Thermal Gasification of Biomass

**Progress Report
April to September 2008**

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Task Accomplishments

Task Meetings & Technical Workshops : By Oct 17, will complete 4 out of 6 for the current triennium

Publications:

Task Meeting Minutes

Workshop Summaries

EXCo Progress Reports

Technology Report on 'Synthesis Gas & Its Utility'

Website with Updated Country Reports

Next Triennium: Draft Scope to be Discussed at the Next Task Meeting – 15 to 17 Oct 2008

WS 2 (Oct 2007): Synthesis Gas Contaminants

CONTAMINANTS	RAW GAS	TARGET
Tar+BTX	5-20 g/Nm ³	<0.1 g/g/Nm ³
Hydrocarbons	up to 6 % by vol	-
Ammonia	200-2000 ppm	<10 ppm
HCN	10-100 ppm	<10 ppb
H ₂ S	50-100 ppm	<100 ppb
COS	2-10 ppm	<10 ppb
Alkali /metal compounds	0.5-5 ppm	<10 ppb

SOA : Low-temperature Gas Cleaning or HT Slagging Gasification Produce Clean Gas

Note: Reliable Analytical Techniques A Challenge to Measure ppm and ppb Levels
See Task 33 WS 2: Characterization of Synthesis Gas Report on Task Website

Follow-on work: Standardization of analytical techniques for measuring ppm and ppb level contaminants

WS 3 (April 2008): HSE* Activities for Small-scale BMG Plants up to 5 MWth Capacity

- Improve / Create Awareness: HSE is Important
- Establish a 'state of the art procedure' to Assess and Avoid Risks
- Harmonize and Accelerate the Permitting Procedure
- Initiate Guidelines for Safe and Eco-friendly Biomass Gasification Plants.

* - **Health, Environment, & Safety**

Task 33: Draft Technology Report - Contents..

- **Biomass Gasification and Synthesis Gas Contaminants**
- **Target Concentration Levels of Synthesis Gas Contaminants**
- **Clean-up of Raw Synthesis Gas**
 - **Particulate Removal**
 - **Low-temperature Gas Clean-up**
 - **Advanced Gas Clean-up**
- **Synthesis Gas Conversion**
 - **Hydrogen**
 - **Methanol and Methanol Derived Fuels**
 - **Mixed Alcohol Fuels**
 - **Fischer-Tropsch Synthesis**
 - **Other Synthesis Gas Conversion Processes**
 - **P-Series fuels**
 - **Syntec Fuels**
 - **BRI Fuels**
 - **Coskata Fuels**
 - **Range Fuels**
- **Summary**

Proposed Scope of Work (2010-2012)

Focus: Thermal Gasification of Biomass and Selected Wastes – Biofuels, SNG, Chemicals, and Power; Co-production; Integration with Ligno-cellulosic Biofuels Processes; Sustainability (Feedstock, Water, GHG, Socio-economic Benefits, Security of Supply)

- Conduct Semi-annual Task Meetings/ Technical Workshops (Joint WS where appropriate)
- Survey & Exchange of Information/Maintain Task Website
- Report/Update BMG Activities in Participating Countries & Other Selected Countries
- **Identify Gasifier Feeders that can handle Feed Stocks with Variable Properties**
- **Discuss, Identify, and Address Sustainability (feed stock & water) and Social Responsibility Issues (job creation) – Joint Study**
- Monitor Advances in Gas Cleanup and Thermochemical & Biological Synthesis – **Process and System Integration**
- Develop RD&D Priorities to Advance BMG and Related Bioenergy and Chemicals
- Encourage collaborative RD&D for Innovations and Market Development
- Identify Process Steps with Short Commercial Implementation Timeline/Warranties
- **Examine opportunities for Embedded Generation with Forest Product Industries/Utilities as well as Integration with Chem. Process Inds & Refineries**
- **Initiate Protocols for Characterization of Synthesis Gas for BTL**
- Develop Guidelines for Safe and Eco-friendly Small-scale Biomass Gasification Plants
- **Develop Position Papers for Policy and Decision Makers - Joint Study**
- Publish Selected Results
- Provide other EXCo Deliverables

RED LETTERS: New Initiatives