



# Biomass Program

## Thermochemical R&D

### Evaluation of RVS-1 Sorbent for Removal of Sulfur from Black Liquor Gasification

Gas cleanup and conditioning are integral to the use of the syngas produced from biomass gasification. Raw syngas can contain several unwanted compounds, including tar, particulates, alkali, ammonia, chlorine, and sulfur, which can affect the downstream processing of the syngas to fuels, chemicals, or power. This project is targeting syngas desulfurization using an RSV-1 sorbent developed by the National Energy Technology Laboratory (NETL).

Researchers at NETL will conduct tests with a hot/warm gas cleanup unit with RVS-1 sorbent in order to investigate whether the sorbent can be used to remove sulfur from the syngas generated from a black liquor steam reformer system

developed by Manufacturing and Technology Conversion International, Inc (MTCI). MTCI's black liquor reformer system will be used at the Georgia-Pacific Big Island Mill for chemical recovery and power production.

#### R&D Pathway

The sorbent will undergo bench-scale tests and the effect of contaminants on sorbent performance will be studied. Researchers will develop a preliminary design of the cleanup unit and conduct an economic assessment of the full-flow hot gas cleanup unit that will be installed at the Big Island Mill. The sorbent will then undergo pilot-scale testing.



RSV-1 sorbent.

#### Benefits

- **Increased effectiveness of desulfurization step**
- **Reduced cost of raw syngas cleanup and conditioning**

#### Applications

**The economic viability of biomass gasification will be improved with the development of better gas cleanup and conditioning technologies.**

#### Project Partners

**National Energy Technology Laboratory**

#### Project Period

**FY 2002 – FY 2005**

#### For more information contact:

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