

Specifications - Exhibit A

Biomass Automated Feeding System:

- Will transport the feedstock into the pyrolysis system.
- Feed rate perfectly matched to pyrolysis unit
- Integrated with pyrolysis system
- Custom designed for individual feedstocks
- Options available for creating, measuring and feeding blends of multiple feedstocks

Pyrolysis System:

- Available in 25kg/hr, 250kg/hr and 1tph biomass input (these weights are based on the average density of wood chips)
- Increase capacity by combining additional units
- Custom designed for individual feedstocks
- Modular design for future expandability
- Produces Biochar soil amendment or ECOSS base char
- Integrated Full Spectrum Heat Utilization System
- Generates vapors to be converted into syngas or bio-oil
- Steel construction - may require Stainless Steel or other alloys
- Multiple zone reactor
- Proven Continuous Flow Transport Process
- Real Time Process Management
- Pressure sensors
- Flow meters- for steam and purge gas
- Precision temperature and pressure control
- Nitrogen purge system
- Other inert gas systems also available
- Low pressure system - < 15psig
- Self-powering
- Initial start up requires outside energy source- natural gas or propane models available

Syngas Production:

- Converts pyrolysis vapors into a hydrogen rich, clean burning syngas
- Creates a syngas that is compatible with some current generators and turbines
- Hot Gas Filtration Char Recovery
- Integrated Full Spectrum Heat Utilization System
- Self-powering
- Initial start up requires outside energy source- natural gas or propane models available
- Custom designed for individual feedstocks

System Controls:

- Full Automation
- Eprida Control Software integrates and automates the system components, keeping controls simple
- Fully integrated Ethernet PAC controls system
- Operator interface that provides real-time data monitoring
- Safety Features
- Automatic Shutdown including various failsafe methods
- Audio and Visual Alarms
- Data Collection
- Tracks, records, and controls all system parameters including flow rates, temperatures, pressures, inputs and outputs
- Necessary Hardware and Software included
- PC User Interface with Data Management

Performance Data:

The data is from the conversion of two specific feedstocks. Each feedstock will be different, which is exemplified by the two sets of data. The different yields of products are due to varying chemical and structural composition between different feedstocks. To determine actual output for a particular biomass, initial performance testing of each particular feedstock is a requirement to establish a range of performance and co-product yields.

The following are mass balances provided by the pilot Eprida System. As throughput is determined by feedstock density, particle size, moisture content, chemical composition, microporous structure, etc, we use actual measured performance of known feedstocks to establish a window of system performance. The following are flow rates on a “per 100kg of biomass feed” basis. This allows for easy percentage calculations. The sample biomass feedstocks are pelletized peanut hull pellets and southern yellow pine, which provide a range of documented performance. Please note that each biomass “mixture” will be different and results below are only provided as guidelines for typical input mixtures.

For standard peanut hull pellets:

- The total inputs (100.00kg), steam (46.04kg), and nitrogen (6.96kg)
- Product yields are biochar soil amendment or ECOSS base char, 29.98kg, and syngas, 102.65kg.
- The syngas has a measured concentration of 44% H₂, 26% CO₂, 8% CH₄, 12% CO, and 10% N₂.
- Available energy in the form of heat (HHV) is 1.18kw/kg +/- 20% (additional power ~0.5-0.8 kw/kg can be recovered for low intensity demand like home heating). The method of fuel/energy production and the applicable conversion ratios will determine total power available.
- 20.37kg of steam is recovered for recycling back through the system.

For typical southern yellow pine pellets:

- The total inputs are biomass (100.00kg), steam (88.44kg), and nitrogen (6.96kg),
- Product yields are biochar soil amendment or ECOSS base char, 26.30, and syngas, 126.64kg.
- The syngas has a measured concentration of 47.6% H₂, 18.3% CO₂, 2.7% CH₄, 13.7% CO, and 17.7% N₂.
- Available energy in the form of heat (HHV) is 1.71kw/kg +/- 20% (additional power ~0.5-0.8 kw/kg can be recovered for low intensity demand like home heating). The method of energy utilization (if not heat) and the applicable conversion ratios will determine total power available.
- 42.46kg of steam is recovered for recycling back through the system.

Using existing electric generation techniques, efficiency increases of up to 54% have been demonstrated utilizing Eprida syngas.

Biochar soil amendment has been shown to increase crop productivity and soil fertility. Biochar and ECOSS base char can also provide opportunities for carbon sequestration and carbon storage.

