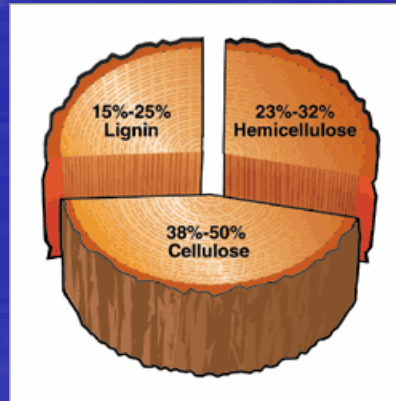


Biomass Energy Source

Matt Chia

An introduction to biomass

- Biomass is C-based organic mass
- A source of chemical energy
- Currently used for cooking, power generation and transportation
- Most common source of renewable energy



Advantages of biomass

- Highly abundant
- Emission cycle and reduction
- Less damaging to environment

Figure ES-A Environmental Protection Agency Draft Technical Report EPA420-P-02-001 "A Comprehensive Analysis of Biodiesel Impacts on Exhaust Emissions"

Emission	B100	B20
Carbon Monoxide	-47%	-12%
Hydrocarbons	-67%	-20%
Particulates	-48%	-12%
Nitrogen Oxides	+10%	+2%
Air Toxics	-60-90%	-12-20%
Mutagenicity	-80-90%	-20%

Biomass power generation

- Miniscule sulfur emission
- Capture of other usable materials from biomass (wood processing industry)
- Reduction of odor typically associated with conventional disposal methods

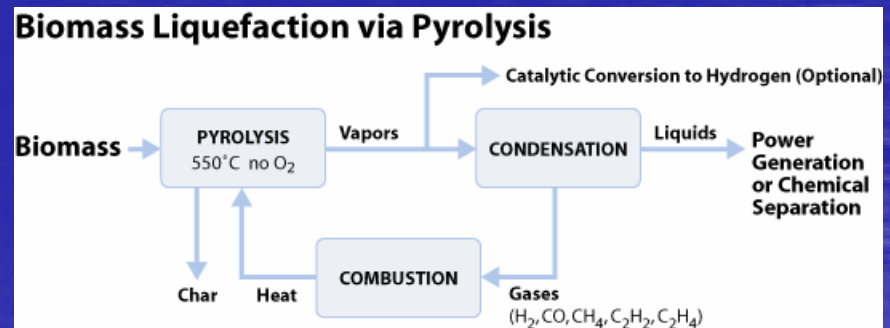
Biofuel use



- Very versatile, B20 format and experimental E-diesel do not require engine modification
- Oxygenated, allowing for complete combustion

Fuel production from biomass

- Low amount of oxygen + biomass => usable fuels
- Can be done by gasification, pyrolysis, or hydrothermal liquefaction
- Produces ethanol and petroleum replacements



Sources



- The U.S. Department of Energy, Energy Efficiency and Renewable Energy (EERE)

<http://www.eere.energy.com/biomass>

- The National Renewable Energy Laboratory

<http://www.nrel.gov/biomass>

- Some random site

<http://edugreen.teri.res.in/explore/renew/biomass.htm>