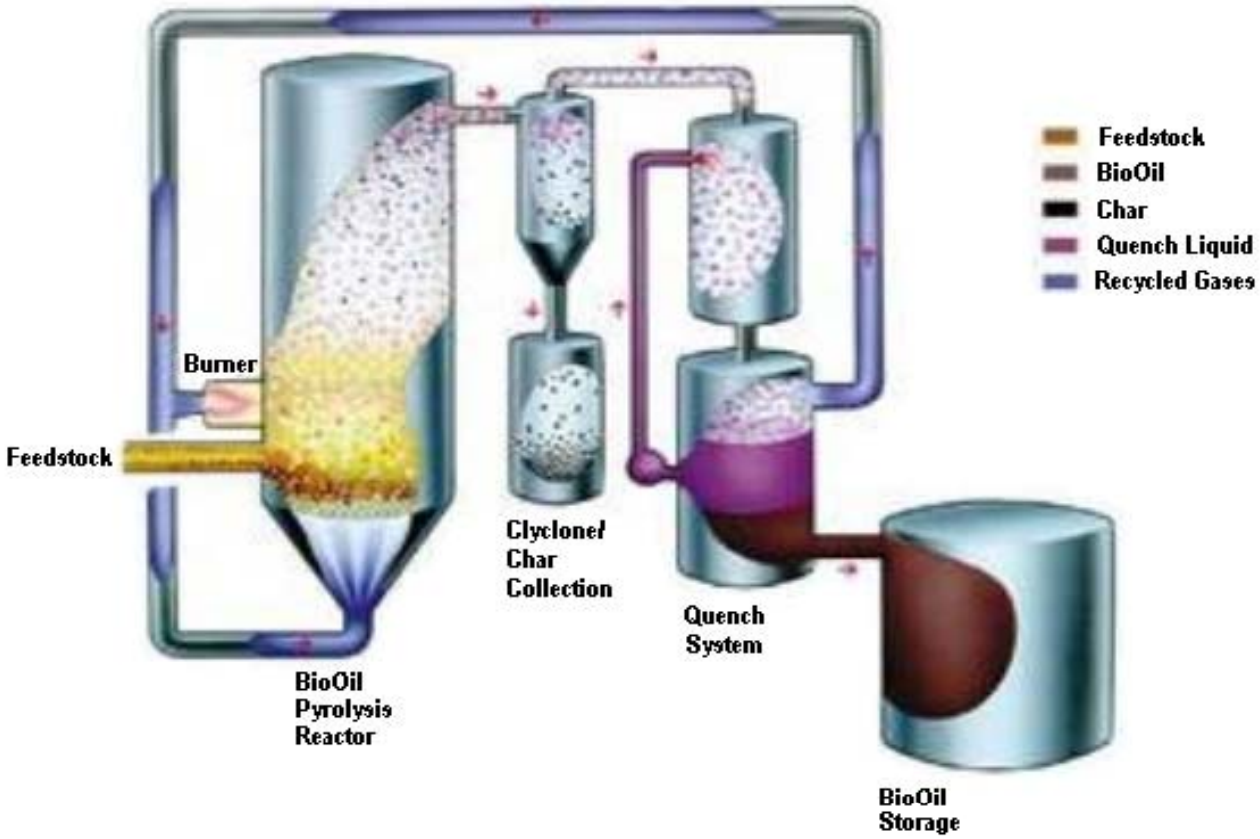
Bio-oil has many of the advantages of petroleum fuels since it can be stored, pumped and transported. It is currently being combusted directly in boilers, gas turbines, and slow and medium speed diesels for heat and power applications.

Section: BIOFUELS
A Fast Pyrolysis Process for Making Bio-oil



Source:
http://www.dynamotive.com/technology/fast-pyrolysis/

Notes:
Information from Dynamotive's website describes the process as follows. Prepared feedstocks with less than 10% moisture content and a 1-2 mm particle size are fed into the bubbling fluid-bed reactor. The fluidized bed is heated to 450-500 degrees Celsius in the absence of oxygen. The feedstock flashes and vaporizes and the resulting gases pass into a cyclone where solid particles, char, are extracted. The gases enter a quench tower where they are quickly cooled using bio-oil already made in the process. The bio-oil condenses and falls into the product tank, while the noncondensable gases are recycled back to the reactor and burned to provide process heat. The entire reaction from injection to quenching takes only two seconds.

One hundred percent of the feedstock is utilized in the process to produce bio-oil and char. The characteristics of the bio-oil are described in tables found under bio-oil in the Biofuels section of this book and can also be found at the source listed above. The char that is collected is a high Btu value solid fuel that can be used in kilns, boilers and by the briquette industry, among other things including blending back into the bio-oil to make a fuel slurry. The non-condensed gases are re-circulated to fuel approximately 75% of the energy needed by the pyrolysis process. The relative yields of bio-oil, char, and non-condensable gases vary depending on feedstock composition.