*"Bio-oil fuels have unique characteristics that distinguish them from petroleum-based (hydro-carbon) products. The table below illustrates the primary differences between bio-oil and other fuels including light and heavy fuel oil." -DynaMotive*

**Section: BIOFUELS**
**Bio-oil Fuel Comparisons**

| | Units | BioTherm® Bio-oil | Light Fuel Oil | Heavy Fuel Oil |
|---|---|---|---|---|
| High Heating Value | MJ/kg | 16-19 | 46 | 43 |
| Flash Point | °C | 48-55 | 38 | 60 |
| Pour Point | °C | -15 | -6 | N/A |
| Density (15°C) | Kg/L | 1.2 | 0.865 | 0.986 |
| Acidity | pH | 2-3 | N/A | N/A |
| Solids (Char) | %wt | 0.01-0.2 | N/A | N/A |
| Moisture | %wt | 20-25 | N/A | <0.5 |
| Ash | %wt | <0.02 | Trace | 0.08 |
| Kinematic Viscosity | | | | |
| @ 20°C | cSt | 70 | 3-6 | 2,000-9,000 |
| @ 40°C | cSt | 19 | 1.8-3.5 | 500-1,000 |
| @ 60°C | cSt | 8 | 1.4-2.5 | 100-200 |
| @ 80°C | cSt | 4 | 1.1-1.8 | 40-70 |

**Source:**

DynaMotive,
http://www.dynamotive.com/assets/resources/PDF/PIB-BioOil.pdf

**Notes:**

N/A = not applicable; MJ/kg = megajoule per kilogram; C = Celsius; Kg/L = kilogram per liter; %wt = percent by weight; cSt = centistokes.