

## Laboratory Analysis Report

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cc: DNR, Biodiesel Works, LLC

Sample ID: KS06100222      Type of Sample: Biodiesel  
Sample Date: 09/30/2006      Sample Point: 1  
Sample Description: Line 1, All level  
Sample Notes:      UOP 391 Sodium (Na) = 0.2 ppm wt/wt  
                         UOP 391 Potassium (K) = 1.6 ppm wt/wt

Method	Results
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**D 6584 - Free and Total Glycerin in B-100**

0.003 mass % Free Glycerin  
0.521 mass % Monoglyceride  
0.233 mass % Diglyceride  
0.452 mass % Triglyceride  
0.220 mass % Tot. Glycerin

**D 93 - Flash-Point by Pensky-Martens Closed Cup Tester**

164 °C

**D 2709 - Water and Sediment**

<0.005 vol. %

**D 445 - Kinematic Viscosity**

4.730 cSt @ 40°C

**D 874 - Sulfated Ash**

0.000 mass %

**D 5453 - Total Sulfur by Ultraviolet Fluorescence**

0.00043 mass % Sulfur

**D 130 - Copper Corrosion**

1a

**D 613 - Cetane Number**

52.3

**D 2500 - Cloud Point**

4.7 °C

**D 524 - Carbon Residue, Ramsbottom**

<0.010 % Carbon Residue

**D 664 - Acid Number of Petroleum Products by Potentiometric Titration**

0.28 mg KOH/gram

**D 4951 - Phosphorous by ICP**

<0.0005 mass %

**Method**                      **Results**

**D 1160 - Distillation at Reduced Press.**

**Reported in Atmospheric Equivalent Temperatures (AET)**

10 mm Hg  
260 °C IBP AET  
349 °C 5% Rec. AET  
350 °C 10% Rec. AET  
350 °C 20% Rec. AET  
351 °C 30% Rec. AET  
351 °C 40% Rec. AET  
352 °C 50% Rec. AET  
354 °C 60% Rec. AET  
355 °C 70% Rec. AET  
356 °C 80% Rec. AET  
357 °C 90% Rec. AET  
359 °C 95% Rec. AET  
430 °C FBP AET  
99.0 Vol. %  
1.0 Vol. %

*Deanna M. Angert-Hyland*

11/2/2006

Tests performed meet ASTM D 6751 specifications.