



ARI Energy Co, LLC

## Bio Sustainable Oil

Test	Method	Result	Unit	ASTM limit	Pass/Fail
Calcium & Magnesium	EN 14538	0.0	ppm	5, max	P
Flash point, closed cup	D 93 (Proc. C)	153.0	°C	93, min	P
Alcohol Control:					
Option 1: Methanol	EN 14110 (Proc. B)		mass %	0.2, max	
Option 2: Flash Point	D 93 (Proc. C)	153.0	°C	130, min	P
Water and Sediment	D 2709	< 0.010	% volume	0.050, max	P
Kinematic Viscosity cSt@40°C	D 445	4.698	mm <sup>2</sup> /sec.	1.9-6.0	P
Sulfated Ash	D 874	< 0.005	% mass	0.020, max	P
Sulfur	D 5453	0.8	ppm	15, max	P
Copper Corrosion at 50°C	D 130	1A	n/a	No. 3, max	P
Cetane Number	D 613 <sup>A</sup>	58.7	n/a	47, min	P
Cloud Point	D 2500	-1	°C	Report	Report
Carbon Residue	D 4530	0.015	% mass	0.050, max	P
Total Acid Number	D 664 (Method B)	0.14	mg KOH/g	0.50, max	P
Cold Soak Filterability	D 7501	108	seconds	360, max <sup>B</sup>	Report
Free Glycerin	D 6584	0.019	% mass	0.020, max	P
Total Glycerin:	D 6584	0.175	% mass	0.240, max	P
Monoglycerides	D 6584	0.604	% mass	n/a	
Diglycerides	D 6584	0.000	% mass	n/a	
Triglycerides	D 6584	0.000	% mass	n/a	
Phosphorus	D 4951	0.000008	% mass	0.001, max	P
Distillation at 90% rec., AET	D 1160	386	°C	360, max	Fail
Sodium & Potassium	EN 14538	0.0	ppm	5, max	P
Oxidation Stability	EN 15751	0.1	hours	3, min	Fail
Other Tests:					
Visual Inspection	D 4176 (Proc. 2)	1	haze	Report <sup>C</sup>	Report
Density @ 15.6°C (60°F)	D 4052		g/mL	Report	
KF Moisture (Coulometric)	D 6304 (Proc. A)		ppm	Report	
KF Moisture (Volumetric)	E 203		% mass	Report	
Total Contamination	D 7321		mg / L	Report	
Cold Filter Plug Point	D 6371		°C	Report	
API Gravity @ 15.6°C (60°F)	D 4052		API	Report	
FAME (GC)	EN 14103		% mass	Report	
Linolenic	EN 14103		% mass	Report	
Specific Gravity (relative density) @ 15.6°C (60°F)	D 4052		n/a	Report	

<sup>A</sup>Test performed by outsourced laboratory.

<sup>B</sup>360 max for Grade 2B. 200 max for Grade 1B, with max 0.400 for monoglycerides.

<sup>C</sup>BQ-9000 requires a value of 2 maximum.