



ATTACHMENT B, Revision 1 Biodiesel Fuel Specification For

Campbell Industrial Park Generating Station (CIP CT-1)

Property	Test Method	Units	Min Value	Max Value
Calcium and Magnesium, combined	EN 14538	ppm ($\mu\text{g/g}$)		5
Flash point (closed cup)	D93	$^{\circ}\text{C}$	93	
Alcohol Control, one of following must be met				
1. Methanol content	EN 14110	% volume		0.2
2. Flash point	D93	$^{\circ}\text{C}$	130	
Water and sediment	D2709	% volume		0.05
Kinematic viscosity, 40 $^{\circ}\text{C}$	D445	mm ² /s	1.9	6
Sulfated ash	D874	% mass		0.02
Ash	D482	wt %		0.01
Sulfur	D5453	% mass (ppm)		0.05 (500)
Copper strip corrosion	D130			No. 3
Cetane number	D613		47	
Cloud point (<i>Report</i>)	D2500	$^{\circ}\text{C}$		
Carbon residue	D4530	%mass		0.05
Acid number	D664	mg KOH/g		0.30
Free glycerin	D6584	% mass		0.020
Total glycerin	D6584	% mass		0.240
Distillation temperature				
Atmospheric equivalent temperature				
90% recovered	D1160	$^{\circ}\text{C}$		360
Oxidation stability	D7462	mg per 100 cc		2.5
Sodium and Potassium, combined	D3605 / D6728	ppmw		0.5
Vanadium (V)	D3605 / D6728	ppmw		0.5
Lead (Pb)	D3605 / D6728	ppmw		0.5
Barium (Ba)	D3605 / D6728	ppmw		2.0
Manganese (Mn)	D3605 / D6728	ppmw		2.0
Phosphorous (P)	D3605 / D6728	ppmw		2.0
Chlorides (Cl)	D4929M	ppmw		6.0
Cold Soak Filtration	Annex to D6751	seconds		360
Heat of Combustion	ASTM D240	Btu/lb		report value



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Biodiesel Fuel Specification
For**

Honolulu International Airport Emergency Power Facility (HIA EPF)

Property	Test Method	Units	Min Value	Max Value
Density at 15°C	D1298	g/cm ³	0.86	0.90
Pour Point	D97	° C	6° C (10° F) below ambient temp	
Calcium and Magnesium, combined	EN 14538	ppm (µg/g)		5
Flash point (closed cup)	D93	° C	93	
Methanol content	EN 14110	% volume		0.2
Water and sediment	D2709	% volume		0.05
Kinematic viscosity, 40° C	D445	mm ² /s	1.9	6
Sulfated ash	D874	% mass		0.02
Sulfur	D5453	% mass (ppm)		0.0015 (15)
Copper corrosion	D130			No. 1
Cetane number	D613		45	
Cloud point (<i>Report</i>)	D2500	° C		
Carbon residue	D4530	%mass		0.05
Acid value	D664	mg KOH/g		0.30
Free glycerin	D6584	% mass		0.020
Total glycerin	D6584	% mass		0.240
Phosphorus content	D4951	% mass		0.001
Distillation temperature				
Atmospheric equivalent temperature				
90% recovered	D1160	° C		360
Oxidation stability	EN14112	hours	3	
Sodium and Potassium, combined	EN14538	ppm		5
Esterification	EN14103	% mass	97.5	
Monoglycerides	D6584	% mass		0.8
Diglycerides	D6584	% mass		0.2
Triglycerides	D6584	% mass		0.2
Cold Soak Filtration	Annex to D6751	seconds		360