

Test Description	Test Method	Type	Biodiesel Bottoms	Biodiesel Bottoms	Biodiesel Bottoms	Undistilled Biodiesel	Undistilled Biodiesel	Undistilled Biodiesel	Biodiesel
Viscosity @ 50 °C	D445-11/ASV	Unit							
Density @ 15 °C	B3942/PGC	cSt	62.45	39.7	17.8	33.56			
Acid Number	D664-5/ASV	kg/m3	935	931	928	922	882	837	878
Sulfur	D2622-1/CLN	mg KOH/g	18.41	0.89	0.76	6.6	0.23	4.38	6.64
Carbon residue	D4530/ASV	mg/kg	237	63.3	41.6	245	19.6	20.4	27.4
Total Sediment		Mass %	3.45	1.54	0.78	2.3	0.06		
Existent (TSE)	ISO 10307-1	Mass %	0.21	0.13	0.07	0.06			
SIMDIST (T10)	M1567/ASV	°C	368	357	355	355		332	334
SIMDIST (T50)	M1567/ASV	°C	516	571	455	510		340	355
SIMDIST (T90)	M1567/ASV	°C	641	612	585			359	363
Pour Point	D5950-1/GAS	°C	1	9	9	18		19	N/A
Ash	D482	wt%	0.385	0.215	0.011	0.643			
Vanadium	D5158-MOD	mg/kg		0	0	<1			
Aluminum	D5158-MOD	mg/kg	52	0	2	25		0	1
Silicon		mg/kg	8	9	5	4		0	0
Calcium		mg/kg	440	52	0	121		0	18
Zinc		mg/kg	15	0	0	<1		0	1
Phosphorus		mg/kg	700	44	2	442		0	27
Magnesium		mg/kg	28	28	0			0	1
Iron		mg/kg	1000	7	1			4	39
Potassium		mg/kg	300		0	109		7	15
Sodium			21	9	42	174		0	
Chlorine	ASTM D7536	wt%	11.3	3.5	14.4			2.9	3.6

FIG. 1

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Ester content	EN 14103	Unit							Biodiesel
Linolenic acid Methyl ester	EN 14103	wt%	14.6	37.2	43.6		>99	>99	
Free glycerin	ASTM D6584	wt%	<0.1	0.4	1.5		0.1	0.2	
Monoglycerides	ASTM D6584	wt%	0.001	0.03	0.002		0.061	0.054	0.005
Diglycerides	ASTM D6584	wt%	0.402	0.994	0.503		0.005	0.299	0.427
Triglycerides	ASTM D6584	wt%	1.996	7.903	0.389		<0.001	0.247	0.103
Total glycerin	ASTM D6584	wt%	7.209	20.696	0.094		<0.001	0.069	0.016
	ASTM D6584	wt%	1.15	3.624	0.2		0.062	0.175	0.132

FIG. 2