

APPENDIX-A
BIODIESEL STANDARDS

Table A1: USA standards of diesel and bio diesel fuel

Property	ASTM D975-08a American standard		USA biodiesel standard ASTM D6751-12		
			2-B	1-B	Standard test
Flash point (°C)	No 1D: >38 No 2D: >52	D93	>93		D93
Water & sediment (% vol)	<0.05	D2709	<0.050		D2709
Water (mg/kg)					
Total contamination (mg/kg)					
Distillation temperature in % vol recovered (°C)	90%: 1D <288 2D 282-338	D86	90%: <360		D1160
Kinematic viscosity (mm ² /s)	1D 1.3-2.4 2D 1.9-4.1	D445	1.9-6.0		D445
Density (kg/m ³)					
Ester content (% w/w)					
Ash (% w/w)	0.01	D482			
Sulfated Ash (% w/w)			<0.020		D874
Sulfur (mg/kg)	1D and 2D: S15 <15 mg/kg S500 <0.05% S5000 <0.50%	D5453 D2622 D1292	Two grades: S15 <15 ppm S500 <0.05%		D5453
Copper strip corrosion	<No 3	D130	<No 3		D130
Cetane number	>40	D613	>47		D613
Cetane index					
Cloud point			Report		D2500
CFPP					
Acid number (mg KOH/g)			<0.50		D664
Oxidation stability (h)					
Iodine value (g I ₂ /100g)					

Property	ASTM D975-08a American standard		USA biodiesel standard ASTM D6751-12		Standard test
			2-B	1-B	
Polyunsaturated methyl esters (% w/w)			≤0.20 (methanol)		EN14110
Alcohol control (% w/w)			≥130°C flash point min		D93
Monoglycerides, diglycerides & triglycerides (% w/w)			MG ≤0.40		D6584
Group I metals (Na + K) (mg/kg)			≤5		EN 14538
Group II metals (Ca + Mg) (mg/kg)			≤5		EN 14538
Free glycerol (% w/w)			≤0.02		D6584
Total glycerol (% w/w)			≤0.24		D6584
Phosphorous ≤ (% w/w)			≤0.001		D4951
Lubricity	≤520 μm	D6079			
Conductivity	≥25 pS/m	D2624 D4308			D7501
Cold soak filtration time (CSFT)			≤360 s	≤200 s	

Table A2: European standards of diesel and bio diesel fuel

Property	European diesel fuel standard EN 590:2004		European biodiesel standard EN 14214:2012	
Flash point (°C)	>55	EN 22719	>101	EN ISO 2719
Water & sediment (% vol)				
Water (mg/kg)	<200	EN ISO 12937	<500	EN ISO 12937
Total contamination (mg/kg)	<24	EN 12662	<24	EN 12662
Distillation temperature in % vol recovered (°C)	65%: >250 85%: <350	EN ISO 3405		
Kinematic viscosity (mm ² /s)	2.0-4.5	EN ISO 3104	3.5-5.0	EN ISO 3104
Density (kg/m ³)	820-845	EN ISO 3675 EN ISO 12185	860-900	EN ISO 3675 EN ISO 12185
Ester content (% w/w)	5% vol. max FAME	EN 14078	96.5	EN 14103
Ash (% w/w)	≤0.01	EN ISO 6245		
Sulfated Ash (% w/w)			<0.02	ISO 3987
Sulfur (mg/kg)	Two grades: <50 <10	EN ISO 14596 EN ISO 8754 EN ISO 24269	<10	EN ISO 20846 EN ISO 20884 EN ISO 13032
Copper strip corrosion	<class 1	EN ISO 2160	<class 1	EN ISO 2160
Cetane number	>51.0	EN ISO 5165	>51.0	EN ISO 5165
Cetane index	>46.0	EN ISO 4264		
Cloud point	Location & season dependent	EN 23015	Location & season dependent	EN 23015
CFPP	Location & season dependent	EN 116	Location & season dependent	EN 116
Carbon residue on 10% distillation residue (% w/w)	<0.30	EN ISO 10370		
Acid number (mg KOH/g)			<0.50	EN 14104
Oxidation stability (h)		EN ISO 12205	≥6	EN 14112
Iodine value (g I ₂ /100g)			≤120	EN 14111 EN 16300
Linolenic acid methyl ester (% w/w)			≤12	EN 14103

Property	European diesel fuel standard EN 590:2004		European biodiesel standard EN 14214:2012	
Polyunsaturated methyl esters (% w/w)			≤1	EN 15779
Alcohol control (% w/w)			≤0.20 (methanol)	EN 14110
Monoglycerides, diglycerides & triglycerides (% w/w)			≤ MG 0.8 ≤ DG 0.20 ≤ TG 0.20	EN 14105
Group I metals (Na + K) (mg/kg)			5.0 mg/kg	EN 14108 EN 14109 EN 14538
Group II metals (Ca + Mg) (mg/kg)			5.0 mg/kg	EN 14538
Free glycerol (% w/w)			0.02% wt	EN 14105 EN 14106
Total glycerol (% w/w)			0.25% wt	EN 14105
Phosphorous ≤ (% w/w)			4.0 mg/kg	EN 14107 EN 16294
Lubricity			≤460 μm	ISO 12156-1
Conductivity				
Cold soak filtration time (CSFT)				