

BUCKEYE TERMINALS, LLC
BUCKEYE PIPE LINE HOLDINGS, L.P.

TERMINAL

PRODUCT GRADE SPECIFICATIONS

7.0 TERMINAL PRODUCT GRADE SPECIFICATIONS

This section contains specifications for products which are delivered via truck or rail and are stored in fungible tankage for shared customers intended for terminal rack blending. These products may also be loaded neat or without blending. These products are not pumped in any Buckeye pipeline system.

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BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR DENATURED ETHANOL
IN ACCORDANCE WITH ASTM D4806

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Ethanol, volume %	D5501	95.0		
Methanol, volume %	D5501		0.5	
Solvent-washed gum, mg/100 mL	D381		5.0	
Water content, volume % (mass %)	E203, E1064		1.0 (1.26)	
Denaturant content, volume %	Calculated	1.96	3.0 2.5	1,2
Inorganic Chloride content, mass ppm (mg/L)	D7319, D7328		6.7 (5) 40(8)	These changes are effective Dec 8, 2016.
Copper content, mg/kg	D1688		0.1	
Acidity (as acetic acid CH ₃ COOH), mass % (mg/L)	D1613, D7795		0.007 (56)	
pHe	D 6423	6.5	9.0	
Sulfur, mass ppm Outside California California Only	D2622, D3120, D5453		10 30 10	4
Sulfate, mass ppm	D7318, D7319, D7328		4	
Benzene, vol%	D7576-10		0.06	4
Olefins, vol%	D7347-07		0.5	4
Aromatic Hydrocarbons, vol%	D7576-10		1.7	4
Appearance		Visibly free of suspended or precipitated contaminants (clear and bright)		

NOTES:

1. Refer to most current ASTM D-4806 specifications regarding permitted and prohibited denaturants. Denaturant is added in the specified range to comply with federal regulations, and the content is set by volumetric addition during the denaturing process. There is no standardized test procedure to directly determine the denaturant content of the ethanol. Current analytical procedures only provide a calculated estimate of the denaturant content, which is not sufficiently accurate for determining compliance.
2. **Only previously certified gasoline, gasoline blendstocks or natural gas liquids may be used as denaturant.** Product may not be denatured, wholly or partially, with MTBE.
3. This product is a terminal specification only, not a pipeline product specification.
4. California terminals only. Does not apply to terminals outside of California.

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR BIODIESEL FUEL BLEND STOCK
IN ACCORDANCE WITH ASTM D6751

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Calcium and Magnesium, combined ppm (µg/g)	EN 14538		5	
Flash point (closed cup) °C (°F)	D93	93°C (199°F)		
Alcohol control, One of the following must be met:				
1. Methanol content, mass %	EN 14110		0.2	
2. Flash point °C (°F)	D93	130°C (266°F)		
Water and sediment, % volume	D2709		0.050	
Kinematic viscosity, 40°C mm ² /s	D445	1.9	6.0	
Sulfated ash, % mass	D874		0.020	
Sulfur, % mass (ppm)	D5453		0.0011 (11)	
Copper strip corrosion	D130		No. 3	
Cetane number	D613	47		
Cloud point - Winter °C (°F)	D2500		2°C (36°F)	1,3
- Summer °C (°F)	D2500		10°C (50°F)	1,3
Carbon residue, % mass	D4530		0.050	5
Acid number, mg KOH/g	D664		0.50	
Cold soak filterability seconds - Winter	D7501		200 (Winter)	1
- Summer	D7501		360 (Summer)	1
Free glycerin, % mass	D6584		0.020	
Total glycerin, % mass	D6584		0.240	
Phosphorus content, % mass	D4951		0.001	
Distillation temperature AET °C (°F) 90 % recovered	D1160		360°C (680°F)	
Sodium and Potassium, combined ppm (µg/g)	EN 14538		5	
Oxidation stability hours	EN15751	3		
Water By Karl Fischer ppm	D6304		500	
Monoglyceride % mass - Winter	D6584		0.5 (Winter)	1
-Summer	D6584		0.8 (Summer)	1

NOTES:

1. Summer is April 1 through September 30. Winter is October 1 through March 31.
2. Supplier must be BQ9000 producer certified.
3. No cold flow additives are permitted.
4. This product is a terminal specification only, not a pipeline product specification.
5. Carbon residue shall be run on the 100% sample (see ASTM D6751).