

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.

| <u>INDEX</u> | <u>PAGE</u> |
|-------------------|-------------|
| Denatured Ethanol | 3 |
| Biodiesel Fuel | 4 |

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> | |
| Gravity, API @ 60°F | D1298, D4052 | | Report | |
| 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, D7923 | | 1.0 (1.26) | |
| Denaturant content, volume % | Calculated | 1.96 | 3.0 | 1,2 |
| Inorganic Chloride content, mass ppm (mg/L) | D7319, D7328 | | 6.7 (5) | |
| Copper content, mg/kg | D1688 | | 0.1 | |
| Acidity (as acetic acid CH ₃ COOH), mass % (mg/L) | D7795 | | 0.0070 (56) | |
| pHe | D 6423 | 6.5 | 9.0 | |
| Sulfur, mass ppm | D2622, D3120, D5453, D7039 | | 10 | 5 |
| 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.
5. For California Terminals, D5453-93 shall be used to determine sulfur content.

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> | |
| Gravity, API @ 60°F | D287, D4052, D1298 | | Report | |
| 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 | | 0.0015 (15) 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).
6. **Product shall meet ASTM D6751 Grade 2B S15 Specification.**