

BUCKEYE PARTNERS, L.P.

BUCKEYE TERMINALS, LLC

BUCKEYE PIPE LINE HOLDINGS, L.P.

TABLE I
MARINE TERMINAL PRODUCT RECEIPT
SPECIFICATIONS

Albany, NY	Baltimore, MD	Bahamas Hub
Bayonne , NJ	Bronx, NY	Charleston, SC
Chesapeake, VA	Cincinnati, OH	Corpus Christi, TX
Ft Lauderdale, FL	Groton, CT	Jacksonville, FL
Louisville, KY	Marrero, LA	New Haven, CT
Newark, NJ	Pennsauken, NJ	Perth Amboy, NJ
Port Reading, NJ	Pt Wilmington, DE	Raritan Bay, NJ
Rensselaer, NY	Roseton, NY	South Portland, ME
S. St. Louis, MO	St. Lucia	Tampa North, FL
Tampa South, FL	Wilmington, NC	Yabucoa, PR

7.1 MARINE TERMINAL PRODUCT GRADE SPECIFICATIONS

This section contains specifications for products which are delivered into a Buckeye Marine Terminal via a water bourn vessel which is handled on a fungible or common-stream basis.

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BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR ULTRA LOW SULFUR DIESEL

<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	30		
Flash Point, °F	D93, D56, D7094	130		1, 9
Color, ASTM	D1500		2.5	3
Viscosity, cst @ 104°F	D445	1.9	4.1	9
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F	9
(April thru August)	D5773, D3117, D7683		+20 °F	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F	
(April thru August)			+10°F	
Total Sulfur, ppm (at receipt)	D5453, D3120, D4292		15	
(Port Reading & Raritan only)	D2622, D7039		11	2
Corrosion, 3 hrs. @ 122°F	D130		1	
Oxidation Stability, mg/100 ml OR	D2274		2.5	2
Thermal Stability, 90 minutes				
150°C Pad rating OR	DuPont		7	2
Thermal Stability, Y/Green	D6468	73%		2
W Unit		65%		
Carbon Residue, wt. % on 10% bottom	D524 or D4530		0.35	
Ash, wt. %	D482		0.01	
Sediment and Water, % by volume	D2709		0.05	
Cetane Number or Index	D4737, D613, D6890, D7170	40		
Aromatics (Vol%)	D1319		35.0	
or Aromatics by Cetane Index	D976	40		
Distillation, °F	D86			
50% recovered		Report		
90% recovered		540	640	
End Point			700	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Undyed		3
Additives				4
Electrical Conductivity, pS/m @ 70°F	D2624		250	4
NACE	TM0172-2001	B+		5

Intended to be consistent with ASTM D975 Grade No. 2 middle distillate fuels (unless otherwise noted) and must also comply with specifications under distillate oil definition as specified in 40 CFR 1090.

NOTES:

1. Test method D-93 is the referee method.
2. Only required at Port Reading and Raritan Bay, due to pipeline connectivity.
3. Product must exhibit no visible evidence of dye. Must be clear and bright.
4. Use of lubricity improver additive is prohibited. Product may, but is not required to, contain static dissipator/electrical conductivity additive (SDA). The only approved SDAs for use is Innospec Stadis 450 and AvGuard SDA and origin maximum concentration of either SDA is 0.75 mg/l.
5. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172-2001 (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
6. Biofuel Components (e.g. biodiesel) are not permitted in this product, except at Bronx where Biodiesel is permitted at levels between 2.0 – 20.0%
7. Shipments of this Grade Code are limited to less than 5.0% renewable diesel. Renewable diesel is a liquid fuel derived from 100% hydrotreated biomass that meets the registration requirements for fuels and fuel additives established by the EPA under Section 211 of the Clean Air Act and the requirements of ASTM D975. Fuel containing fatty acid esters (FAME, FAEE, or other esters) is prohibited.
8. **This product is for Motor Vehicle use and is designated as ULSD (Max 15 ppm sulfur ULSD)**
9. For Maine from Dec 1 through March 14, if blended with K-1 or ULSD1, Cloud Point max is -16F, Flash point minimum is 120F and viscosity minimum is 1.7 cst (@104F).

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR ULTRA LOW SULFUR HEATING OIL
CERTIFIED NTDF - 15 PPM SULFUR (UNDYED)

<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	30		
Flash Point, °F	D93, D56, D7094	130		1
Color, ASTM	D1500		2.5	3
Viscosity, cst @ 104°F	D445, D7042	1.9	4.1	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F	
(April thru August)	D5773, D3117, D7683		+20 °F	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F	
(April thru August)			+10°F	
Total Sulfur, ppm (at receipt)	D5453, D3120, D4294		15	
(Port Reading & Raritan, only)	D2622, D7039		11	2
Corrosion, 3 hrs. @ 122°F	D130		1	
Oxidation Stability, mg/100 ml OR	D2274		2.5	2
Thermal Stability, 90 minutes				
150°C Pad rating OR	DuPont		7	2
Thermal Stability, Y/Green	D6468	73%		2
W Unit		65%		
Carbon Residue, wt. % on 10% bottom	D524 or D4530		0.35	
Ash, wt. %	D482		0.01	
Sediment and Water, % by volume	D2709		0.05	
Cetane Number or Index	D4737, D613, D6890, D7170	40		
Aromatics (Vol%)	D1319		35.0	
or Aromatics by Cetane Index	D976	40		
Distillation, °F	D86			
50% recovered		Report		
90% recovered		540	640	
End Point			700	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Undyed		3
Additives				4
Electrical Conductivity, pS/m @ 70°F	D2624		250	4
NACE	TM0172-2001	B+		5

Intended to be consistent with ASTM D975 Grade No. 2 middle distillate fuels (unless otherwise noted) and must also comply with specifications under distillate oil definition as specified in 40 CFR 1090.

NOTES:

1. Test method D-93 is the referee method.
2. Only required at Port Reading and Raritan Bay, due to pipeline connectivity.
3. Product must exhibit no visible evidence of dye. Must be clear and bright.
4. Use of lubricity improver additive is prohibited. Product may, but is not required to, contain static dissipator/electrical conductivity additive (SDA). The only approved SDAs for use is Innospec Stadis 450 and AvGuard SDA and origin maximum concentration of either SDA is 0.75 mg/l.
5. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172-2001 (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
6. Biofuel Components (e.g. biodiesel) are not permitted in this product, except at Bronx where Biodiesel is permitted at levels between 2.0 – 20.0%
7. Shipments of this Grade Code are limited to less than 5.0% renewable diesel. Renewable diesel is a liquid fuel derived from 100% hydrotreated biomass that meets the registration requirements for fuels and fuel additives established by the EPA under Section 211 of the Clean Air Act and the requirements of ASTM D975. Fuel containing fatty acid esters (FAME, FAEE, or other esters) is prohibited.
8. **This fuel is designated for non-transportation use (Certified NTDF – 15 ppm sulfur Max) and for heating oil use (Heating Oil (Max 15 ppm sulfur ULSHO)).**

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR ULTRA LOW SULFUR DIESEL #1 (MOTOR VEHICLE)
(ULSD #1)

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Appearance	White Bucket	Report		1
Gravity, API @ 60°F	D287, D1298 or D4052	37	51	
Color, at origin	D156, D6045	18		1
Corrosion, 2 hrs. @ 212°F	D130		1	
Cetane Number or Index	D4737, D613, D6890, D7170	40		
Aromatics (Vol%)	D1319		35.0	
or Aromatics by Cetane Index	D976	40		
Total Sulfur, ppm (at receipt)	D5453, D3120, D4294		15	
(Port Reading & Raritan, only)	D2622, D7039		11	2
Doctor Test	D4952		Negative	
OR				
Mercaptan Sulfur, wt. %	D3227		0.003	
Flash Point, °F	D56, D3828	108		
(Pennsauken only)		123		
Distillation, °F	D86			
10% recovered		Report	400	
50% recovered		Report		
90% recovered		Report	550	
95% recovered		Report		
End Point			572	
Residue, %			1.5	
Loss, %			1.5	
Freezing Point, °F	D5972, D7153, D7154, D2386		-22	
Viscosity, cst. @ 104°F	D445	1.3	1.9	
Ash, wt %	D482		0.01	
Sediment and Water, % by volume	D2709		0.05	
Carbon residue, wt % on 10% bottom	D524		0.15	
Thermal Stability, 90 minutes				
150°C Pad rating	DuPont		7	2
Burning Quality	D187	Report		
Electrical Conductivity	D2624	Report		
Additives		Report		
NACE	TM0172-2001	B+		4

NOTES:

1. Product shall be clear (referring to clarity, not color) and bright and free of suspended matter. ~~and must not exhibit various shades of green, blue or red. No peacock or abnormal color deposits.~~
2. Only required at Port Reading and Raritan Bay, due to pipeline connectivity
3. Reserved
4. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172-2001 (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
5. Biofuel Components (e.g. biodiesel) are not permitted in this product
6. Reserved
7. Intended to be consistent with ASTM Grade No. 1 middle distillate fuels, unless otherwise noted.
8. **This product is for Motor Vehicle use and is designated as ULSD1 (Max 15 ppm sulfur).**
9. Because ULSD1 and ULSK are co-mingled in tank, specifications must meet both ULSD1 and ULSK ASTM requirements.

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR ULTRA LOW SULFUR KEROSENE (NON-ROAD ULSD #1)
CERTIFIED NTDF

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Appearance	White Bucket	Report		1
Gravity, API @ 60°F	D287, D1298 or D4052	37	51	
Color, at origin	D156, D6045	18		1
Corrosion, 2 hrs. @ 212°F	D130		1	
Cetane Number or Index	D4737, D613, D6890, D7170	40		
Aromatics (Vol%)	D1319		35.0	
or Aromatics by Cetane Index	D976	40		
Total Sulfur, ppm (at receipt)	D5453, D3120, D4294		15	
(Port Reading & Raritan, only)	D2622, D7039		11	2
Doctor Test	D4952		Negative	
OR				
Mercaptan Sulfur, wt. %	D3227		0.003	
Aromatics, vol. %	D1319		25	
Flash Point, °F	D56, D3828	108		
(Pennsauken only)		123		
Distillation, °F	D86			
10% recovered		Report	400	
50% recovered		Report		
90% recovered		Report	550	
95% recovered		Report		
End Point			572	
Residue, %			1.5	
Loss, %			1.5	
Freezing Point, °F	D5972, D7153, D7154, D2386		-22	
Viscosity, cst. @ 104°F	D445	1.3	1.9	
Ash, wt %	D482		0.01	
Sediment and Water, % by volume	D2709		0.05	
Carbon residue, wt % on 10% bottom	D524		0.15	
Thermal Stability, 90 minutes				
150°C Pad rating	DuPont		7	2
Burning Quality	D187	Report		
Electrical Conductivity	D2624	Report		
Additives		Report		
NACE	TM0172-2001	B+		4

NOTES:

- Product shall be clear (referring to clarity, not color) and bright and free of suspended matter. ~~and must not exhibit various shades of green, blue or red. No peacock or abnormal color deposits.~~
- Only required at Port Reading and Raritan Bay, due to pipeline connectivity
- Reserved
- All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172-2001 (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
- Biofuel Components (e.g. biodiesel) are not permitted in this product
- Reserved
- Intended to be consistent with ASTM Grade No. 1 middle distillate fuels, unless otherwise noted.
- This fuel is designated for non-transportation use (Certified NTDF – 15 ppm sulfur Max) and kerosene.
- Because ULSD1 and ULSK are co-mingled in tank, specifications must meet both ULSD1 and ULSK ASTM requirements.

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR
No. 1 KEROSENE FUEL OIL (400 ppm sulfur)

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Color	D156, D6045	18		1
Gravity, API @ 60°F	D287, D1298, D4052	37	51	
Corrosion, 3 hrs. @ 212°F	D130		1	
Sulfur, ppm	D2622, D4294, D1266, D1552		400	
Doctor Test OR	D4952		Negative	
Mercaptan Sulfur, mass %	D3227		0.003	2
Flash Point, °F	D56, D3828	108		
Physical Distillation, °F	D86			
10% recovered			419	
90% recovered			550	
End Point			572	
Freezing Point, °F	D5972, D7153, D7154, D2386		-22	
Viscosity, cst. @ 104°F	D445	1.0	1.9	
Carbon residue, wt % on 10% bottom	D524		0.15	
Burn Quality				
Time of Burning	D187			Min 16 h continuous after first weighing
Burning Quality	IP 10			18 to 26 g/h after first weighing
Chimney Appearance	D187			Max light white deposit (at end of test)
Flame Characteristics	D187			Maximum variance of flame width (6mm) & flame height lowered (5 mm)
Sediment and Water, % by volume	D2709		0.05	
NACE	TM0172-2001	B+		

NOTES:

1. Product shall be clear (referring to clarity, not color) and bright and free of suspended matter.
2. Mercaptan Sulfur waived if fuel is negative by Doctor test.
3. Reserved
4. This product should be designated as "Kerosene" in the EPA's Designate and Track reporting system.
5. Biofuel Components (e.g. biodiesel) are not permitted in this product.

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR HEATING OIL - HIGH SULFUR AND
NO. 2 FUEL OIL

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS		NOTE
		MINIMUM	MAXIMUM	
Gravity, API @ 60°F	D287, D4052	30		
Flash Point, °F	D93, D56, D7094	116		1
Viscosity, cst @ 104°F	D445	1.9	4.1	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15°F	
(April thru August)	D5773, D3117		+20°F	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0°F	
(April thru August)			+10°F	
Total Sulfur, wt. %	D7039, D2622, D4294, D5453, D1552	See below Table		

High Sulfur Heating Oil Maximum Sulfur Table

Grade Code	Max Sulfur, wt % (ppm)
500 ppm Low Sulfur HO	0.0450 (450)

*Maryland has transitioned to ULSHO on July 1, 2019.

Corrosion, 3 hrs. @ 122°F	D130		1
Oxidation Stability, mg/100 ml or	D2274		2.5
Thermal Stability, 90 minutes			
150°C Pad rating	DuPont		7
Carbon Residue, wt. % on			
10% bottom	D524 or D4530		0.35
Ash, wt. %	D482		0.01
Sediment and Water, % by volume	D2709		0.05
Physical Distillation, °F	D86		
50% recovered		Report	
90% recovered		540	640
End Point			690
Haze Rating @ 77°F	D4176 (Procedure 2)		2
Color Visual		Dyed	2
Dye Content, ppm (when required)	D6258 or	11.1	16.0
	Petrospec DT100		
NACE	TM0172-2001	B+	4

NOTES:

1. Test method D-93 is the referee method.
2. Dye requirement is terminal specific, as some terminals may allow for dyed product, and some may only allow undyed product. Check with Terminal Scheduling for exact requirements. Port Reading and Raritan Bay required undyed product only. When dye is required, use standard solvent Red 26 or solvent Red 164, in concentrations of 3.9 lbs. or 6.6 lbs., respectively, of active dry ingredient per 1,000 barrels. Product must meet a maximum color of 2.5 per ASTM D1500 prior to introduction of dye.
3. The use of lubricity improver additives is prohibited.
4. Biofuel Components (e.g. biodiesel) are not permitted in this product.
5. Reserved
6. This product is for heating oil use and should be designated as HOU MRK in EPA's Designate and Track reporting system.
7. Intended to be consistent with ASTM Grade D396 No. 2 middle distillate fuels, unless otherwise noted.
8. Shipments of this Grade Code are limited to less than 5.0% renewable diesel. Renewable diesel is a liquid fuel derived from 100% hydrotreated biomass that meets the registration requirements for fuels and fuel additives established by the EPA under Section 211 of the Clean Air Act and the requirements of ASTM D975. Fuel containing fatty acid esters (FAME, FAEE, or other esters) is prohibited.

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR FUNGIBLE AVIATION KEROSENE (JET FUEL)

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Appearance	White Bucket	Undyed		1
Color	D156, D6045	18		1
Gravity, API @ 60°F	D287, D1298, D4052	37	51	
Net Heat of Combustion, BTU/lb.	D3338, D4529, D4809	18,400		
Corrosion, 2 hrs. @ 212°F	D130		1	
MSEP (refinery origin)	D3948	85		
(downstream of refinery)	D7224, D3948	85		
Sulfur, wt. %	D2622, D4294, D1266, D1552		0.30	
Doctor Test	D4952		Negative	
OR				
Mercaptan Sulfur, wt. %	D3227		0.003	3
Aromatics, vol. %	D1319		25	
Total Acidity, mg. KOH/g	D3242		0.10	
Existent Gum, mg/100 ml.	D381		7	
THERMAL STABILITY (JFTOT)	D3241			4
(2.5 hrs at control temperature 275°C)				
Filter Pressure drop, mm/Hg			25	
Tube Rating: One of the following requirements shall be met:				
(1) Annex A1 VTR, VTR color code			Less than 3	
(2) Annex A2 ITR or Annex 3 ETR			No peacock or abnormal color deposits	
nm average over area of 2.5 mm ²			85	
Flash Point, °F		D56, D3828	108	
Distillation, °F	D86			
10% recovered			401400	
50% recovered		Report		
90% recovered		Report		
End Point			572	
Residue, %			1.5	
Loss, %			1.5	
OR Simulated Distillation, °F	D2887			
10% recovered			365	
50% recovered		Report		
End Point			644	
Freezing Point, °F	D5972, D7153, D7154, D2386		-40	
Viscosity, cst. @ -4°F	D445, D7945		8.0	
Smoke Point or	D1322	25.0		
Smoke Point and	D1322	18.0		
Naphthalenes, vol. %	D1840		3.0	
Electrical Conductivity	D2624	Report		2
Additives		Report		2

NOTES:

- Product shall be clear (referring to clarity, not color) & bright, free of suspended matter, and not exhibit various shades of green, blue or red.
- Product shall only contain antioxidants and metal deactivators specified and within the concentration noted in the latest ASTM D1655 with advance approval from Buckeye prior to shipment. Use of these additives is expected to be short term at reasonable treat levels, and is to be clearly indicated on the CoA. All other additives are prohibited. Buckeye reserves the right to deny shipment of product containing these additives. In addition, scheduling and Measurement & Quality Control must be notified at least 72 hours prior to the scheduled shipment of any batches containing Metal Deactivator Additive (MDA). If MDA has been added to the product, Buckeye reserves the right to refuse shipment. If requesting to move a batch that has been treated with MDA, supply the following information to Buckeye Measurement & Quality Control: (1) the purpose for adding MDA, (2) JFTOT test results both prior to and after adding MDA, (3) MDA treat rate, and (4) MDA product used.
- Mercaptan Sulfur waived if fuel is negative by Doctor test.
- Refer to ASTM D1655 note M for referee method.
- Product must comply with ASTM D1655 specifications in addition to Buckeye product specifications. Buckeye will accept test methods that are listed in ASTM D1655. Test methods listed above are considered referee methods by Buckeye.
- Designated as Jet Fuel. This fuel is for aviation use only. Not for use in highway vehicles or engines, or NRLM engines.**

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR ULTRA LOW SULFUR MARINE DIESEL OIL (MDO)
CERTIFIED NTFD - 15 PPM SULFUR

<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	30		
Flash Point, °F	D93 or D56	140		1
Color, ASTM	D1500		2.5	2
Viscosity, cst @ 104°F	D445	1.9	4.1	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F	
(April thru August)	D5773, D3117		+20 °F	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F	
(April thru August)			+10°F	
Total Sulfur, ppm (at receipt)	D5453, D2622, D7039		15	
Ash, wt. %	D482		0.01	
Sediment and Water, % by volume	D2709		0.05	
Distillation, °F	D86			
50% recovered		Report		
90% recovered		540	640	
End Point			690	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Dye Content, ppm (when required)	D6258 or Petrospec DT100	11.1	16.0	2
NACE	TM0172-2001	B+		

NOTES:

1. Test method D-56 may be used. Test method D-93 is the referee method.
2. Dye requirement is terminal specific, as some terminals may allow for dyed product, and some may only allow undyed product. Check with Terminal Scheduling for exact requirements. When dye is required, use standard solvent Red 26 or solvent Red 164, in concentrations of 3.9 lbs. or 6.6 lbs., respectively, of active dry ingredient per 1,000 barrels. Product must meet a maximum color of 2.5 per ASTM D1500 prior to introduction of dye.
3. This fuel is designated for non-transportation use (Certified NTFD – 15 ppm sulfur Max)

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR SEGREGATED RESIDUAL FUEL
#6 FUEL OIL, RESIDUAL BLEND STOCKS, BUNKER FUEL, HCO, CSO

<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	10.0	28	3
Flash Point, °F	D93	140		
Viscosity, cst (ssf) @ 122°F	D445, D2161		1000 (470)	6
Pour Point, °F	D5985, D5949, D5950, D97		60 °F	4
Total Sulfur, wt. %	D4294, D5453, D3120		Report	2
Hydrogen Sulfide, ppm	D5705		100	7
Basic Sediment and Water, % by volume	D1796		2.0	
Ash, wt. %	D482		Report	5
Cleanliness & Compatibility Spot Test	D4740		Report	
Product Temperature, °F		Report		1

NOTES:

1. Product temperature must not exceed 10 °F below actual flash point, and shall not be less than 30 °F above pour point.
2. Sulfur limits vary by state, terminal or customer.
3. API Gravity below 10.0 may be allowed if approved by Buckeye Operations, Scheduling and Tank Integrity for tank integrity limitations.
4. Pour points higher than 60F may be allowed if approved by Buckeye Operations, Scheduling and M&QC.
5. Ash testing may be waived if Aluminum and Silicon results (IP470) are provided.
6. At Yabucoa, maximum viscosity is 600 cst at product temperature.
7. At Yabucoa and BBH, maximum H2S content is 10 ppm (ASTM D5705).

MARINE RECEIPT SPECIFICATIONS FOR SEGREGATED
DISTILLATE BLENDSTOCK, DISTILLATE BLEND COMPONENTS, LCO

<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	29	51	
Flash Point, °F	D93	125		
Viscosity, cst @ 104°F	D445	1.0	6.0	
Pour Point, °F	D5985, D5949, D5950, D97		+10°F/ -12 °C	2
Total Sulfur, wt. %	D4294, D5453, D3120		Report	1
NACE	TM0172-2001	B+		4

NOTES:

1. Sulfur limits vary by state, terminal or customer.
2. Pour points higher than +10F may be allowed if approved by Buckeye Operations, Scheduling and M&QC.
3. Hydrogen sulfide is prohibited in these products. Buckeye must be notified if hydrogen sulfide is present.
4. For this product specification, vessels with unknown NACE results may be discharged into Buckeye marine sites provided all receipt tanks are tested by the Customer within 48 hours of receipt. Tanks not meeting the B+ must be treated or blended to at least a B+ within 72 hours of receipt.

BUCKEYE PARTNERS, L.P.
**MARINE RECEIPT SPECIFICATIONS FOR SEGREGATED GASOLINE
OR SEGREGATED UNFINISHED GASOLINE BLEND COMPONENTS**

<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, D1298, D4052	Report	85	2
NACE	TM0172-2001	B+		4
RVP, psi	D5191, D5482, D323		Report	

NOTES:

1. This specification shall include segregated finished gasolines and gasoline blendstocks, such as naphtha, reformat, alkylate, condensate, etc. These products may not contain oxygenates, such as ethers or alcohols.
2. Maximum API may vary by tank. Check with Scheduling/Facility to ensure delivery does not exceed tank's maximum API.
3. Hydrogen sulfide is prohibited in these products. Buckeye must be notified if hydrogen sulfide is present.
4. For this product specification, vessels with unknown NACE results may be discharged into Buckeye marine sites provided all receipt tanks are tested by the Customer within 48 hours of receipt. Tanks not meeting the B+ must be treated or blended to at least a B+ within 72 hours of receipt.

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR SEGREGATED ASPHALT

<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	D70, AASHTO T228	Report		1
Temperature (F)		Report		1
Hydrogen Sulfide, ppm	D5705 MOD		100	2

NOTES:

1. Minimum API and minimum temperature may vary by tank or facility. Check with Scheduling/Facility to ensure delivery does not exceed tank's minimum specification.
2. Test temperature for D5705 MOD needs to be appropriate for the product temperature as determine by local Buckeye Operations.

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR #4 FUEL OIL

<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	16.0	30.0	
Flash Point, °F	D93	131		
Viscosity, ssu @ 100°F (cst @ 104°F)	D88 (D445)	45 (5.5)	125 (24.0)	
Pour Point, °F	D5950, D97		21 °F	
Total Sulfur, wt. %	D4294, D5453, D3120		See Table	1

Maximum Sulfur Table

Grade Code	Max Sulfur, wt %
0.3% Sulfur	0.30
0.5% Sulfur	0.50

Ash, wt. %	D482	0.10
Basic Sediment and Water, % by volume	D1796	0.50

NOTES:

- Sulfur limits vary by state, terminal or customer.

**MARINE RECEIPT SPECIFICATIONS FOR
#4 FUEL OIL 1500 PPM WITH BIODIESEL
BRONX ONLY**

<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	16.0	31.0	
Flash Point, °F	D93	131		
Viscosity, ssu @ 100°F (cst @ 104°F)	D88 (D445)	45 (5.5)	125 (24.0)	
Pour Point, °F	D5950, D97		20 °F	
Total Sulfur, PPM	D4294		1500	1
Gross BTU/Gallon	D240	Report		
Ash, wt. %	D482		0.10	
Basic Sediment and Water, % by volume	D1796		0.50	
Biodiesel content, %	D7371	5	20	2, 3

NOTES:

- Sulfur limits vary by state, terminal, or customer.
- This product is only receipted at Bronx Terminal.
- Biodiesel component used for blending must meet ASTM D6751.

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

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
	<u>METHODS</u>	<u>MINIMUM</u>	<u>MAXIMUM</u>	
Gravity, API @ 60°F	D1298, D4052		Report	
Ethanol, volume %		95.0		
	D5501			
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	
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.
MARINE RECEIPT SPECIFICATIONS FOR BIODIESEL FUEL BLEND STOCK
IN ACCORDANCE WITH ASTM D6751

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
	<u>METHODS</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		0.0011 (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).

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR
FUNGIBLE CONVENTIONAL GASOLINE BLENDSTOCK (CBOB)
REGULAR AND PREMIUM GRADES
 (Page 1 of 3)

SPECIFICATIONS FOR CBOB GASOLINE PRIOR TO ETHANOL ADDITION

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Color			Undyed	
Gravity, API @ 60°F	D4052		Report	9
Haze Rating @ 77°F (Procedure 2)	D4176		2	
Oxygen Content, weight %	D5599		0.1	2,4
Oxidation Stability, minutes	D525	240		
NACE	TM0172-2001	B+		1,8
RVP, psi (without ethanol)	D5191		See Table CB-1	11,12
Sulfur, ppm	D2622		80	
<u>Premium Grade only:</u>				
Distillation T50, Deg F	D86	170		
TV/L 20, Deg F	D5188	Refer to Table CB-2		
(Neat TV/L must meet minimum monthly limit found in Table CB-2)				
<u>Albany and Cincinnati Premium Grade only:</u>				
Octane Rating for Premium Octane Grades (Neat)				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		91.0		

Table CB-1 – MAX RVP (psi) BEFORE BLENDING WITH 10% ETHANOL

<i>Destination</i>		<i>Jan</i>	<i>Feb</i>	<i>Mar¹</i>	<i>Apr¹</i>	<i>May 1 Through Sept 15</i>	<i>Sep 16-30</i>	<i>Oct</i>	<i>Nov 1-15</i>	<i>Nov 16-30</i>	<i>Dec</i>
Florida Terminals	RVP psi	13.5	13.5	13.5	11.5	9.0	11.5	11.5	13.5	13.5	13.5
South Carolina Terminals	RVP psi	13.5	13.5	13.5	13.5	9.0	11.5	13.5	13.5	13.5	13.5
North Carolina Terminals	RVP psi	15.0	13.5	13.5	13.5	9.0	11.5	13.5	13.5	13.5	15.0
Virginia Terminals and Kentucky Terminals	RVP psi	15.0	15.0	13.5	13.5	9.0	11.5	13.5	15.0	15.0	15.0
New Jersey and Maine Terminals	RVP psi	15.0	15.0	15.0	13.5	7.8	13.5	13.5	15.0	15.0	15.0
Maryland Terminals	RVP psi	14.5	14.5	14.5	12.9	9.0	12.9	12.9	12.9	14.5	14.5
New York Terminals	RVP psi	14.5	14.5	14.5	12.9	7.8	12.9	12.9	14.5	14.5	14.5
Ohio Terminals	RVP psi	15.0	15.0	15.0	13.5	9.0	11.5	13.5	15.0	15.0	15.0

(1) Not all Grade Codes (and RVPs) are available at all Terminals. Lower Summer RVP limits may only apply to certain counties - the Terminal may not have storage capacity for all RVP grades.

(2) Summer Grade gasoline discharged in March and April shall have Maximum RVPs with minimum 0.2 psi buffer for tank turn (i.e. Max RVP of 8.8 will be accepted for 9.0 RVP product).

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR
FUNGIBLE CONVENTIONAL GASOLINE BLENDSTOCK (CBOB)
REGULAR AND PREMIUM GRADES

(Page 2 of 3)

SPECIFICATIONS WITH 10% DENATURED ETHANOL AS DEFINED IN ASTM D4806

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Corrosion (Copper), 3 hrs. @ 122°F	D130		1	1
Corrosion (Silver Strip) 3 hrs. @ 122°F	D7671		1	1
Benzene, vol. %	D3606		3.8	
Doctor Test	D4952		Negative	3
Or Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	10
Phosphorous, gms/gal	D3231		0.004	10
Solvent washed Gum, mg/100ml	D381		4	
Octane Rating with 10% Denatured Fuel Ethanol				5,6
Regular Grades				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Premium Grades				13
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
RVP, psi with 10% Denatured Fuel Ethanol	D5191	Refer to Table CB-2		11,12
Distillation	D86	Refer to Table CB-2		
TV/L 20, Deg F	D5188	Refer to Table CB-2		10
Driveability Index	D4814	Refer to Table CB-2		

NOTES:

- No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
- This product may not contain oxygenates, such as ethers or alcohols. The use of non-hydrocarbon blending components is prohibited. The di minimis limit of MTBE, ETBE, and TAME allowed is 0.3 vol. % maximum at origin.
- Mercaptan Sulfur waived if fuel is negative by Doctor test.
- Any gasoline exhibiting an offensive odor and/ or poses a personal health hazard will not be accepted for shipment. Any gasoline containing more than 0.50 wt. % of dicyclopentadiene will not be accepted for shipment. The referee method will be based on a gas chromatograph test.
- The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
- The use of MMT octane enhancing additive is prohibited.
- Buckeye will accept test method results as listed in ASTM D4814 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
- All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172-2001 (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
- Maximum API may vary by tank. Check with Scheduling/Facility to ensure delivery does not exceed tank's maximum API.
- Lead and phosphorous testing may be waived if source refinery is a lead-free and phosphorous-free facility and stipulates on CoA that all gasoline will meet EPA lead and phosphorous requirements without testing. Testing will not be waived for internationally sourced vessels or domestic blending facilities.
- Beginning Sept 16 (Non-VOC season), low RVP grades may be comingled with corresponding next higher RVP grade. Buckeye reserves the right to regrade to higher RVP during seasonal RVP limit increases, provided destination RVP compliance is maintained at time of delivery.
- This gasoline is for blending with between 9 and 10 vol % ethanol. Base gasoline - Not for sale to the ultimate consumer. Summer grades of this product do not meet the requirements for summer reformulated gasoline, and may not be used in any reformulated gasoline covered area.

**BUCKEYE PARTNERS, L.P. - MARINE RECEIPT SPECIFICATIONS FOR FUNGIBLE CONVENTIONAL GASOLINE BLENDSTOCK
(CBOB) REGULAR AND PREMIUM GRADES - CONTINUED
CBOB TABLE CB-2 - SEASONAL GASOLINE REQUIREMENTS**

(Page 3 of 3)

SPECIFICATIONS WITH 10% DENATURED ETHANOL AS DEFINED IN ASTM D4806

REID VAPOR PRESSURE (RVP) (ALL LIMITS WITH 10% ETHANOL)

The following schedule denotes the volatility properties as required by Buckeye and will coincide with dates specified by appropriate government agencies. Terminal tanks must be compliant with the monthly maximum or minimum requirements prior to the start of the month. Customers must schedule accordingly and higher volatile product must be removed from tankage prior to a more stringent month beginning. Buckeye will use a Grabner vapor pressure instrument to monitor RVP compliance, per ASTM D5191, but will use the coefficients recommended by EPA, i.e. 956X - 0.347.

DISTILLATION CLASSES: ASTM D-86 (ALL LIMITS WITH 10% ETHANOL)

CLASS	A	C	D	E
10% Evap., Deg F (Deg C) Max.	158 (70)	140 (60)	131 (55)	122 (50)
50% Evap, Deg F (Deg C) Min. ⁽¹⁾	150 (66)	150 (66)	150 (66)	150 (66)
50% Evap., Deg F (Deg C) Max.	250 (121)	240 (116)	235 (113)	230 (110)
90% Evap., Deg F (Deg C) Max.	374 (190)	365 (185)	365 (185)	365 (185)
End Point, Deg F (Deg C) Max.	430 (221)	430 (221)	430 (221)	430 (221)
Driveability Index Deg F (Deg C) Max. ⁽²⁾	1250 (597)	1230 (586)	1220 (580)	1200 (569)

CLASS	1	2	3	4	5
Min Vapor/Liquid Ratio (TV/L) with 10% Ethanol, 20 °F (°C) [ASTM D-5188] ¹	129 (54)	122 (50)	116 (47)	107 (42)	102(39)

Maximum RVP and Distillation Requirements¹ - Tanks must be turned to more stringent Class before first of month

Destination		Jan	Feb	Mar ^d	Apr ^d	May	Jun	Jul	Aug	Sep 1-15	Sep 16-30	Oct	Nov 1-15	Nov 16-30	Dec
Florida Terminals	RVP psi	14.5	14.5	14.5	12.5	10.0	10.0	10.0	10.0	10.0	12.5	12.5	14.5	14.5	14.5
	dist	D-4	D-4	D-4	C-3	A-3	A-3	A-3	A-3	A-3	C-3	C-3	D-4	D-4	D-4
South Carolina Terminals	RVP psi	14.5	14.5	14.5	14.5	10.0	10.0	10.0	10.0	10.0	12.5	14.5	14.5	14.5	14.5
	dist	D-4	D-4	D-4	D-4	A-3	A-3	A-3	A-2	A-2	C-3	D-4	D-4	D-4	D-4
North Carolina Terminals	RVP psi	15.5	14.5	14.5	14.5	10.0	10.0	10.0	10.0	10.0	12.5	14.5	14.5	14.5	15.5
	dist	E-5	D-4	D-4	D-4	A-3	A-3	A-3	A-2	A-2	C-3	D-4	D-4	D-4	E-5
Virginia Terminals and Kentucky Terminals	RVP psi	15.5	15.5	14.5	14.5	10.0	10.0	10.0	10.0	10.0	12.5	14.5	15.5	15.5	15.5
	dist	E-5	E-5	D-4	D-4	A-3	A-3	A-3	A-3	A-3	C-3	D-4	E-5	E-5	E-5
New Jersey and Maine Terminals	RVP psi	15.5	15.5	15.5	14.5	9.0	9.0	9.0	9.0	9.0	14.5	14.5	15.5	15.5	15.5
	dist	E-5	E-5	E-5	D-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5	E-5
Maryland Terminals	RVP psi	15.0	15.0	15.0	13.5	10.0	10.0	10.0	10.0	10.0	13.5	13.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-3	A-3	A-3	A-3	A-3	D-4	D-4	D-4	E-5	E-5
New York Terminals	RVP psi	15.0	15.0	15.0	13.5	9.0	9.0	9.0	9.0	9.0	13.5	13.5	15.0	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5	E-5
Ohio Terminals	RVP psi	15.5	15.5	15.5	14.5	10.0	10.0	10.0	10.0	10.0	12.5	14.5	15.5	15.5	15.5
	dist	E-5	E-5	E-5	D-4	A-4	A-3	A-3	A-3	A-3	C-3	D-4	E-5	E-5	E-5

(1) Computer and Linear methods may be used to determine TV/L value. D5188 will be the referee method. Maximum Distillation residue is 2% Vol for all base gasoline.

(2) The DI (Driveability Index) specification limits are not subject to correction for precision of the test method.

(3) Not all Grade Codes (and RVPs) are available at all Terminals. Lower Summer RVP limits may only apply to certain counties - the Terminal may not have storage capacity for all RVP grades.

(4) Summer Grade gasoline discharged in March and April shall have Maximum RVPs with minimum 0.2 psi buffer for tank turn (i.e. Max RVP of 9.8 will be accepted for 10.0 RVP product).

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR
REFORMULATED GASOLINE BLENDSTOCK (RBOB) FOR BLENDING
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806
 (Page 1 of 3)

SPECIFICATIONS FOR RBOB GASOLINE PRIOR TO ETHANOL ADDITION

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Color			Undyed	
Gravity, API @ 60°F	D4052	Report		13
Haze Rating @ 77°F (Procedure 2)	D4176		2	
Oxygen Content, weight %	D5599		0.05	2,4
Oxidation Stability, minutes	D525	240		
NACE	TM0172-2001	B+		1,8
Sulfur, ppm	D2622		80	

SPECIFICATIONS FOR RBOB WITH 10% DENATURED ETHANOL AS DEFINED IN ASTM D4806

Corrosion (Copper), 3 hrs. @ 122°F	D130		1	1
Corrosion (Silver Strip) 3 hrs. @ 122°F	D7671		1	1
Benzene, vol. %	D3606		3.8	
Doctor Test	D4952		Negative	3
Or Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	14
Phosphorous, gms/gal	D3231		0.004	14
Solvent washed Gum, mg/100ml	D381		4	
Octane Rating with 10% Denatured Fuel Ethanol				5,6
Regular Grades				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Premium Grades				13
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
RVP, psi with 10% Denatured Fuel Ethanol	D5191		Refer to Table RB-1	9,11,12
Distillation	D86		Refer to Table RB-1	
TV/L 20, Deg F	D5188		Refer to Table RB-1	10
Driveability Index	D4814		Refer to Table RB-1	

This RBOB may not be combined with any other RBOB except RBOB having the same requirement for oxygenate type and amount.

All parameters must be met after blending with 10% denatured fuel ethanol unless otherwise noted.

NOTES:

- No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
- Before blending with denatured ethanol, this product may not contain oxygenates, such as ethers or alcohols. Refer to test methods published in 40 CFR Part 1090. Oxygen content must meet a minimum of 1.7 wt. % and a maximum of 4.0 wt. % after blending with Denatured Fuel Ethanol. The use of non-hydrocarbon blending components is prohibited. The di minimis limit of MTBE, ETBE, and TAME allowed is 0.3 vol. % maximum at origin.
- Mercaptan Sulfur waived if fuel is negative by Doctor test.
- Any gasoline exhibiting an offensive odor and/ or poses a personal health hazard will not be accepted for shipment. Any gasoline containing more than 0.50 wt. % of dicyclopentadiene will not be accepted for shipment. The referee method will be based on a gas chromatograph test.
- The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
- The use of MMT octane enhancing additive is prohibited.
- Buckeye will accept test method results as listed in ASTM D4814 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.

BUCKEYE PARTNERS, L.P.
MARINE RECEIPT SPECIFICATIONS FOR
REFORMULATED GASOLINE BLENDSTOCK (RBOB) FOR BLENDING
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806
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8. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172-2001 (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
9. Not all Grade Codes (and RVPs) are available on all pipeline systems.
10. Computer and Linear methods may be used to determine TV/L value. D5188 will be the referee method.
11. Beginning Sept 16 (Non-VOC season), low RVP grades may be comingled with corresponding next higher RVP grade. Buckeye reserves the right to regrade to higher RVP during seasonal RVP limit increases, provided destination RVP compliance is maintained at time of delivery.
12. This gasoline is for blending with between 9 and 10 vol % ethanol. Suitable for the special RVP provisions for ethanol blends that contain between 9 and 10 vol% ethanol. Base gasoline - Not for sale to the ultimate consumer.
13. Maximum API may vary by tank. Check with Scheduling/Facility to ensure delivery does not exceed tank's maximum API.
14. Lead and phosphorous testing may be waived if source refinery is a lead-free and phosphorous-free facility and stipulates on CoA that all gasoline will meet EPA lead and phosphorous requirements without testing. Testing will not be waived for internationally sourced vessels or domestic blending facilities.

**BUCKEYE PARTNERS, L.P. - MARINE RECEIPT SPECIFICATIONS FOR REFORMULATED GASOLINE BLENDSTOCK (RBOB)
FOR BLENDING WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806 -CONTINUED
RBOB TABLE RB-1 - SEASONAL GASOLINE REQUIREMENTS (Page 3 of 3)**

REID VAPOR PRESSURE (RVP)

The following schedule denotes the volatility properties as required by Buckeye and will coincide with dates specified by appropriate government agencies. Terminal tanks (with 10% ethanol) must be compliant with the monthly maximum or minimum requirements prior to the start of the month. Customers must schedule accordingly and higher volatile product must be removed from tankage prior to a more stringent month beginning. Buckeye will use a Grabner vapor pressure instrument to monitor RVP compliance, per ASTM D5191, but will use the coefficients recommended by EPA, i.e. 956X - 0.347.

DISTILLATION CLASSES: ASTM D-86

CLASS	A	C	D	E
10% Evap. <u>with 10% Ethanol</u> , Deg F (Deg C) Max.	158 (70)	140 (60)	131 (55)	122 (50)
50% Evap <u>with 10% Ethanol</u> , Deg F (Deg C) Min. ⁽¹⁾	150 (66)	150 (66)	150 (66)	150 (66)
50% Evap. <u>with 10% Ethanol</u> , Deg F (Deg C) Max.	250 (121)	240 (116)	235 (113)	230 (110)
90% Evap. <u>with 10% Ethanol</u> , Deg F (Deg C) Max.	374 (190)	365 (185)	365 (185)	365 (185)
End Point <u>with 10% Ethanol</u>, Deg F (Deg C) Max.	437 (225)	437 (225)	437 (225)	437 (225)
Driveability Index <u>with 10% Ethanol</u> , Deg F (Deg C) Max. ⁽²⁾	1250 (597)	1230 (586)	1220 (580)	1200 (569)

TV/L CLASSES: ASTM D-5188

CLASS	1	2	3	4	5
Min Vapor/Liquid Ratio (TV/L) <u>with 10% Ethanol</u> , 20 °F (°C) [ASTM D-5188] ¹	129 (54)	122 (50)	116 (47)	107 (42)	102(39)

Maximum RVP (with 10% Ethanol), and Max Distillation Requirements (with 10% Ethanol) - Tanks must be turned to more stringent Class before first of month

Destination		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep 1-15	Sep 16-30	Oct	Nov 1-15	Nov 16-30	Dec
New Jersey, Maine, Connecticut	RVP psi dist	15.5 E-5	15.5 E-5	15.5 E-5	14.5 D-4	7.4 A-4	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	14.5 D-4	14.5 D-4	15.5 E-5	15.5 E-5	15.5 E-5
New York	RVP psi dist	15.0 E-5	15.0 E-5	15.0 E-5	13.5 D-4	7.4 A-4	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	13.5 D-4	13.5 D-4	15.0 E-5	15.0 E-5	15.0 E-5
Delaware	RVP psi dist	15.0 E-5	15.0 E-5	15.0 E-5	13.5 D-4	7.4 A-4	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	11.5 C-3	13.5 D-4	15.0 E-5	15.0 E-5	15.0 E-5
Maryland Terminals	RVP psi dist	15.0 E-5	15.0 E-5	15.0 E-5	13.5 D-4	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	13.5 D-4	13.5 D-4	13.5 D-4	15.0 E-5	15.0 E-5
Virginia Terminals	RVP psi dist	15.0 E-5	15.0 E-5	13.5 D-4	13.5 D-4	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	11.5 C-3	13.5 D-4	15.0 E-5	15.0 E-5	15.0 E-5
Kentucky Terminals	RVP psi dist	15.0 E-5	15.0 E-5	13.5 D-4	13.5 D-4	7.4 A-4	7.4 A-3	7.4 A-3	7.4 A-3	7.4 A-3	11.5 C-3	13.5 D-4	15.0 E-5	15.0 E-5	15.0 E-5

- (1) Computer and Linear methods may be used to determine TV/L value. D5188 will be the referee method. Maximum Distillation residue is 2 % Vol.
 (2) The DI (Driveability Index) specification limits are not subject to correction for precision of the test method.
 (3) For products blended to meet EPA or state imposed volatility requirements, RVP test must be performed in accordance with methods published in 40 CFR Part 1090.
 (4) Not all Grade Codes (and RVPs) are available at all Terminals. Terminal may not have storage capacity for all RVP grades.

RESERVED