

**BUCKEYE PIPE LINE COMPANY, L.P.**  
**BUCKEYE PIPE LINE TRANSPORTATION, LLC**  
**LAUREL PIPE LINE COMPANY, L.P.**  
**NORCO PIPE LINE COMPANY, LLC**  
**WOOD RIVER PIPE LINES, LLC**

***FUNGIBLE***

**PRODUCT GRADE SPECIFICATIONS**

### 6.3 PRODUCT GRADE SPECIFICATIONS

This section contains specifications for products which are handled on a fungible or common-stream basis. A "fungible batch" is defined as a batch of petroleum product meeting Carrier's specifications which may be commingled with other batches of petroleum product meeting the same specifications.

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## TABLE 1

### **Approved GUM INHIBITORS AND METAL DEACTIVATORS**

#### For Gasoline

This product may, but is not required to, contain the following:

N, N'di-secondary butyl para-phenylenediamine  
N, N'disalicylidene-1, 2 propanediamine  
2, 6-di-tertiary butyl 4 methyl phenol  
N, N'di (1-ethyl-2-methylpentyl) para-phenylenediamine  
N, N'di-isopropyl-para-phenylenediamine  
N, N'bis- (1, 4-diemethylpentyl) -p-phenylenediamine  
N-Butyl para-aminophenol  
2,4,6 - tritertiary butylphenol  
Ortho-tertiary butylphenol  
2,4-diamethyl-6-tertiary-butylphenol  
2,4-di-tertiary butylphenol  
2,6-di-tertiary butylphenol  
N, secondary butyl, N' phenyl-para-phenylenediamine  
Butylated ethyl, methyl and dimethyl phenols  
Mixed propylated and butylated phenols  
2,4,6 tri-isopropylphenol

### **Approved CORROSION INHIBITORS**

#### For Gasoline

This product may, but is not required to, contain the following:

Aqua Process 11CH77	Mobil—C-605	Spec-Aid 8Q22
Corexit — 5267	OndeoNalco—5403	TOLAD 4410
Innospec—DCI-4A	OndeoNalco 5405	TOLAD 245
Innospec—DCI-6A	OndeoNalco 5406	TOLAD 249
Innospec—DCI-11	Spec-Aid 8Q100	TOLAD 351
Innospec—DCI-30.n	Spec-Aid 8Q101	Unichem 7500
Ethyl Hi Tec 580	Spec-Aid 8Q102	Unichem 7501
Lubrizol – 8014	Spec-Aid 8Q103	Unichem 7510
Lubrizol – 8017	Spec-Aid 8Q106	UOP—Unicor
MidContinental	Spec-Aid 8Q109	UOP—Unicor J
Chemical MCC5001	Spec-Aid 8Q110	UOP—Unicor PL
Tolad 9715	Tolad 3232	Nalco EC5626A
Tolad 9719	Tolad 3232D	Tolad 9711

#### For Diesel Fuels and Fuel Oil

In addition to the above additives, the following may be used:

Dupont	AFA-1
Innospec	DC1-30.n
Nalco	EC 5407-A
Tolad	3032
Infineum	R511

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**NOTE:** All products (except aviation grades 152, 153, 155 and 182) 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).

## TABLE 2 - SEASONAL GASOLINE REQUIREMENTS

### REID VAPOR PRESSURE (RVP)

The following schedule denotes the volatility properties as required by Buckeye and may not coincide with dates specified by appropriate government agencies. Some systems within Buckeye may require earlier dates for summer RVP limits in order to ensure compliance with EPA federal regulations. Shippers will be advised in advance of the date that fungible gasolines must be input into the Buckeye System via the scheduling calendar. 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., Deg F (Deg C) Max.	158 (70)	140 (60)	131 (55)	122 (50)
50% Evap., Deg F (Deg C) Min. <sup>(1)</sup>	170 (77)	170 (77)	170 (77)	170 (77)
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)
<b>End Point, Deg F (Deg C) Max.</b>	<b>437 (225)</b>	<b>437 (225)</b>	<b>437 (225)</b>	<b>437 (225)</b>
Driveability Index Deg F (Deg C) Max. <sup>(2)</sup>	1250 (597)	1230 (586)	1220 (580)	1200 (569)

  

CLASS	1	2	3	4	5
Min deg F (deg C) for Vapor/Liquid Ratio (V/L) = 20 [ASTM D-5188] <sup>1</sup>	133 (56)	133 (56)	124 (48)	116 (47)	105 (41)
Max Residue Vol %	2.0	2.0	2.0	2.0	2.0

### Approximate Origin Maximum RVP and Distillation Requirements<sup>1</sup>

Destination		Jan	Feb	Mar 1-14	Mar 15-31	Apr 1-9	Apr 10-30	May	Jun	Jul	Aug	Sep 1-15	Sep 16-30	Oct	Nov	Dec
LIS and JET (NYC/MA/CT) <sup>4</sup>	psi	15.0	15.0	15.0	13.5	13.5	7.8	7.8	7.8	7.8	7.8	7.8	13.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5
EPS/LPL/PPS (PA)	psi	15.0	15.0	15.0	13.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	13.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5
EPS/PPS (Upstate NY)	psi	15.0	15.0	15.0	13.5	7.8	7.8	7.8	7.8	7.8	7.8	7.8	13.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5
Pittsburgh Area <sup>4</sup>	psi	15.0	15.0	15.0	13.5	7.8	7.8	7.8	7.8	7.8	7.8	7.8	13.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5
Midwest (Southeast Michigan)	psi	15.0	15.0	15.0	13.5	6.8	6.8	6.8	6.8	6.8	6.8	6.8	13.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5
* Midwest (Michigan)	psi	15.0	15.0	15.0	13.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	13.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-4	A-4	A-3	A-3	A-3	A-3	D-4	D-4	E-5	E-5
Wood River (St. Louis) <sup>4</sup>	psi	15.0	15.0	13.5	13.5	13.5	8.0	8.0	8.0	8.0	8.0	8.0	11.5	13.5	15.0	15.0
	dist	E-5	E-5	D-4	D-4	D-4	A-3	A-3	A-3	A-2	A-2	A-2	C-3	D-4	E-5	E-5
Midwest and Wood River (All other)	psi	15.0	15.0	15.0	13.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	11.5	13.5	15.0	15.0
	dist	E-5	E-5	E-5	D-4	A-4	A-4	A-4	A-3	A-3	A-3	A-3	C-3	D-4	E-5	E-5

- (1) The minimum T50 and maximum RVP and V/L for all RBOB's must comply with the applicable requirements of the state in which the fuel is destined for retail.
- (2) The DI (Driveability Index) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2 and are not subject to correction for precision of the test method.
- (3) Refer to Product Grade Specification for specific RVP requirements. 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 80.
- (4) The 7.8 lb RVP limit for NYC, MA, CT, and Pittsburgh is after 10% ethanol blend. The 8.0 lb RVP limit for St. Louis is after 10% ethanol blend.

**BUCKEYE PARTNERS, L.P.**  
**(MIDWEST PRODUCTS SYSTEM ONLY)**  
**SPECIFICATIONS FOR FUNGIBLE NORMAL BUTANE**  
**GRADE 086**

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Vapor Pressure, psig @ 100° F	D1267		50	
Relative Density @ 60/60° F	D1657	0.560	0.600	
Volatile Residue				
Temperature @ 95% evaporated °F	D1837		36	
Corrosion, copper	D1838		1	
Sulfur, ppmw	D2784; D6667		30	
Fluorides, ppmw	UOP619		1.4	
Analysis, liq. Vol. % -	ASTM-2163			
Propane			2.5	
Total butane Composition		95.0		
Isobutane			6.0	
Normal butane		94.0		
Pentanes and Heavier			2.0	
Butadiene			0.01	
Total Olefins			0.35	
Total Aromatics			2.0	
Benzene			0.03	
Free Water		None		

**BUCKEYE PARTNERS, L.P.**  
**(MIDWEST PRODUCTS SYSTEM ONLY)**  
**SPECIFICATIONS FOR FUNGIBLE PROPANE**  
**GRADE 088**

<u>PRODUCT PROPERTY</u>	<u>ASTM TEST METHODS</u>	<u>TEST RESULTS</u>		<u>NOTE</u>
		<u>MINIMUM</u>	<u>MAXIMUM</u>	
Vapor Pressure, psig @ 100° F	D1267		208	
Relative Density @ 60/60° F	D1657	0.500	0.515	
Volatile Residue				
Temperature @ 95% evaporated °F	D1837		-37	
Butanes and heavier	D2163		2.5	
OR				
Residual Matter				
Residue on evaporation of 100 ml., ml	D2158		0.05	
Oil Stain			Pass	1
Corrosion, copper	D1838		1	
Sulfur, ppmw	D2784		123	
Fluorides, ppmw	UOP619		1	
Analysis, liq. Vol. %				
Propylene			5.0	
Propane		90.0		
Free Water		None		

**NOTES:**

1. An acceptable product shall not yield a persistent oil ring when 0.3 ml of solvent residue is added in 0.1 ml increments; after examination in daylight after 2 minutes as described in D2158.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW SULFUR DIESEL (NON-ROAD)**  
**GRADE 130**

<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	30		
Flash Point, °F (at Origin)	D93 or D56	130		1
Color, ASTM	D1500		2.5	
Viscosity, cst @ 104°F	D445	1.9	3.4	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F / -9 °C	
(April thru August)	D5773, DD3117		+20 °F / -7 °C	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F / -18 °C	
(April thru August)			+10°F / -12 °C	
Total Sulfur, wt. %	D1266, D2622, D4294 D5453		0.042	
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	
Cetane Number	D613, D6890, D7170	40		
or				
Cetane Index	D4737	40		
Aromatics (Vol%)	D1319		31.7	
Or Aromatics by Cetane Index	D976	40		
Physical Distillation, °F	D86			
50% recovered		Report		
90% recovered		540	640	
End Point			690	
OR Simulated Distillation, °F	D2887			
50% recovered		Report		
90% recovered		572	673	
End Point			790	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Undyed		4
Additives				5
NACE	TM0172-2001	B+		7

**NOTES:**

- Test method D-56 may be used as an alternate to D-93 with the same limits. Test method D-93 is the referee method. Minimum flash at delivery is 125 °F.
- Intended to be consistent with ASTM Grade No. 2 middle distillate fuels, unless otherwise noted.
- Reserved
- Product must exhibit no visible evidence of dye.
- Use of static dissipater additive or conductivity improver is prohibited.
- The use of lubricity improver additives is prohibited.
- All products (except aviation grades 152, 153, 155 and 182) 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).
- This product is for Non-Road use and should be designated as such in the EPA's Designate and Track reporting system: DNRLM500 through May 31, 2010, DNR500 as of June 1, 2010.
- Biofuel Components (e.g. biodiesel) are not permitted in this product.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW SULFUR DIESEL (NON-ROAD)**  
**GRADE 132**  
**(BUCKEYE-MIDWEST PIPELINE SYSTEM AND WOOD RIVER SYSTEM)**

<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	30		
Flash Point, °F (at Origin)	D93 or D56	130		1
Color, ASTM	D1500		2.5	
Viscosity, cst @ 104°F	D445	1.9	3.4	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F / -9 °C	
(April thru August)	D5773, DD3117		+20 °F / -7 °C	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F / -18 °C	
(April thru August)			+10°F/ -12 °C	
Total Sulfur, wt. %	D1266, D2622 or D4294		0.042	
	D5453			
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	
Cetane Number	D613, D6890, D7170	40		
or				
Cetane Index	D4737	40		
Aromatics (Vol%)	D1319		31.7	
Or Aromatics by Cetane Index	D976	40		
Physical Distillation, °F	D86			
50% recovered		Report		
90% recovered		540	640	
End Point			690	
OR Simulated Distillation, °F	D2887			
50% recovered		Report		
90% recovered		572	673	
End Point			790	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Undyed		4
Additives				5
NACE	TM0172-2001	B+		7

**NOTES:**

1. Test method D-56 may be used as an alternate to D-93 with the same limits. Test method D-93 is the referee method. Minimum flash at delivery is 125 °F.
2. Intended to be consistent with ASTM Grade No. 2 middle distillate fuels, unless otherwise noted.
3. Reserved
4. Product must exhibit no visible evidence of dye.
5. Use of static dissipater additive or conductivity improver is prohibited.
6. The use of lubricity improver additives is prohibited.
7. All products (except aviation grades 152, 153, 155 and 182) 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).
8. This product is for Non-Road use and should be designated as such in the EPA's Designate and Track reporting system: DNRLM500 through May 31, 2010, DNR500 as of June 1, 2010.
9. Biofuel Components (e.g. biodiesel) are not permitted in this product.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR ULTRA LOW SULFUR DIESEL #1 (NON-ROAD)**  
**GRADE 150**

<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
at delivery		+16		
Corrosion, 2 hrs. @ 212°F	D130		1	
Cetane (Number or Index)	D976, D4737, D613, D6890	40		
Total Sulfur, ppm (at Origin)	D5453			
Receipt from Refinery			10.0	
Receipt from Connecting Pipeline			11.0	8
Doctor Test	D4952		Negative	
OR				
Mercaptan Sulfur, wt. %	D3227		0.003	3
Aromatics, vol. %	D1319		25	
Flash Point, °F	D56, D3828	108		
Distillation, °F	D86			
10% recovered		348	400	
50% recovered		Report		
90% recovered		Report	550	
95% recovered		Report		
End Point			572	
or Simulated Distillation, °C(°F)	D2887			
10% recovered			185(365)	
50% recovered		Report		
90% recovered			304(579)	
End Point			340(644)	
Residue, %			1.5	
Loss, %			1.5	
Freezing Point, °F	D5972, D7153, D7154, D2386		-22	
Viscosity, cst. @ 104°F	D445	1.4	1.9	
Ash, wt %	D482		0.01	
Carbon residue, wt % on 10% bottom	D524		0.15	
Thermal Stability, 90 minutes				
150°C Pad rating	DuPont		7	
Burning Quality	D187	Report		
Electrical Conductivity	D2624	Report		2
Additives		Report		2
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 those additives accepted in Table 1 of this section will be permitted by Buckeye. Use of all additives must be approved by Buckeye prior to shipment and must be reported on the Certificate of Analysis and Preshipment Fax of Key Properties.
- Mercaptan Sulfur waived if fuel is negative by Doctor test.
- All products (except aviation grades 152, 153, 155 and 182) 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).
- This product is for Non-Road use and should be designated as such in the EPA's Designate and Track reporting system: DNRLM015 through May 31, 2010, DNR015 as of June 1, 2010.
- Biofuel Components (e.g. biodiesel) are not permitted in this product.
- Intended to be consistent with ASTM Grade No. 1 middle distillate fuels, unless otherwise noted.
- Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR ULTRA LOW SULFUR DIESEL #1 (MOTOR VEHICLE)**  
**GRADE 151**

<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		
at delivery		+16		
Corrosion, 2 hrs. @ 212°F	D130		1	
Cetane (Number or Index)	D976, D4737, D613, D6890	40		
Total Sulfur, ppm (at Origin)	D5453			
Receipt from Refinery			10.0	
Receipt from Connecting Pipeline			11.0	4,5,9
Doctor Test	D4952		Negative	
OR				
Mercaptan Sulfur, wt. %	D3227		0.003	3
Aromatics, vol. %	D1319		25	
Flash Point, °F	D56, D3828	108		
Distillation, °F	D86			
10% recovered		348	400	
50% recovered		Report		
90% recovered		Report	550	
95% recovered		Report		
End Point			572	
or Simulated Distillation, °C(°F)	D2887			
50% recovered			Report	
90% recovered		300(572)	356(673)	
End Point			421(790)	
Residue, %			1.5	
Loss, %			1.5	
Freezing Point, °F	D5972, D7153, D7154, D2386		-22	
Viscosity, cst. @ 104°F	D445	1.4	1.9	
Ash, wt %	D482		0.01	
Carbon residue, wt % on 10% bottom	D524		0.15	
Thermal Stability, 90 minutes				
150°C Pad rating	DuPont		7	
Burning Quality	D187	Report		
Electrical Conductivity	D2624	Report		2
Additives		Report		2
NACE	TM0172-2001	B+		6

**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.
- Only those additives accepted in Table 1 of this section will be permitted by Buckeye. Use of all additives must be approved by Buckeye prior to shipment and must be reported on the Certificate of Analysis and Preshipment Fax of Key Properties.
- Mercaptan Sulfur waived if fuel is negative by Doctor test.
- This product is for Motor Vehicle use and should be designated as such in the EPA's Designate and Track reporting system: DMV1D015 through May 31, 2010, DMV015 as of June 1, 2010.
- Sulfur level at delivery will vary depending upon the origin and delivery location
- All products (except aviation grades 152, 153, 155 and 182) 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.
- Intended to be consistent with ASTM Grade No. 1 middle distillate fuels, unless otherwise noted.
- Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE AVIATION/KEROSENE**  
**GRADE 152**  
 (Page 1 of 2)

<b>PRODUCT PROPERTY</b>	<b>ASTM TEST METHODS</b>	<b>TEST RESULTS</b>		<b>NOTE</b>
		<b>MINIMUM</b>	<b>MAXIMUM</b>	
Appearance	White Bucket	Report		
Color, at origin	D156, D6045	18		1
at delivery		+16		
Gravity, API @ 60°F	D287, D1298, D4052	37	51	
Net Heat of Combustion, BTU/lb.	D3338, D4809, D4529	18,400		
Corrosion, 2 hrs. @ 212°F	D130		1	
Cetane Index	D976, D4737	40		
Water Reaction				
Interface Rating	D1094		1b	
MSEP (at Origin)	D3948	85		
Sulfur, wt. %	D2622, D4294, D1266, D1552		0.04	
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			
Test duration 2.5 hrs.				
Heater temperature 275°C				
Flow rate 3ml/min.				
Pressure drop in mm/Hg			25	
Tube deposit less than			Code 3	4
Flash Point, °F	D56, D3828	108		
Physical Distillation, °F	D86			
10% recovered		348	400	
50% recovered		Report		
90% recovered		Report	550	
95% recovered		465		
End Point			572	
Residue, %			1.5	
Loss, %			1.5	
OR Simulated Distillation, °F	D2887			
10% recovered			365	
50% recovered		Report		
90% recovered			579	
End Point			644	
Freezing Point, °F	D5972, D7153, D7154, D2386		-40	
Viscosity, cst. @ -4°F	D445		8.0	
Viscosity, cst. @ 104°F	D445	1.4	1.9	
Smoke Point or	D1322	25		
Smoke Point and	D1322	18		
Naphthalenes, vol. %	D1840		3.0	
Ash, wt %	D482		0.01	
Carbon residue, wt % on 10% bottom	D524		0.15	
Burning Quality	D187	Report		
Electrical Conductivity	D2624	Report		2
Additives		Report		2

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE AVIATION/KEROSENE**  
**GRADE 152**

*(Page 2 of 2)*

**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.
2. Only those additives specified and within the concentration noted in Section 5.2 through 5.2.2.1 of ASTM D-1655 will be considered for acceptance. The use of any other additives is prohibited. Use of all additives must be approved by Buckeye prior to shipment and must be reported on the Certificate of Analysis and Preshipment Fax of Key Properties. In addition, scheduling and Measurement & Quality Control must be notified at least 48 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) a breakdown of total metals present in the jet fuel before treating with MDA, (3) JFTOT test results both prior to and after adding MDA, (4) MDA treat rate, and (5) MDA product used.
3. Mercaptan Sulfur waived if fuel is negative by Doctor test.
4. No peacock or abnormal color deposits.
5. Product must comply with ASTM D1655 specifications in addition to Buckeye product specifications.
6. This product is for use as aviation fuel or home heat and should be designated as "Kerosene" in the EPA's Designate and Track reporting system.
7. Biofuel Components (e.g. biodiesel) are not permitted in this product.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE ULSD-1(MOTOR VEHICLE)/AVIATION/ULSK**  
**GRADE 155**  
 (Page 1 of 2)

<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		
Color, at origin	D156, D6045	18		1
at delivery		+16		
Gravity, API @ 60°F	D287, D1298 or D4052	37	51	
Net Heat of Combustion, BTU/lb.	D3338, D4809, D4529	18,400		
Corrosion, 2 hrs. @ 212°F	D130		1	
Cetane Index	D976, D4737	40		
Water Reaction				
Interface Rating	D1094		1b	
MSEP (at Origin)	D3948	85		
Sulfur, ppm (at Origin)	D5453, D2622			
Receipt from Refinery	D4294, D1266		10.0	
Receipt from Connecting Pipeline	D1552		11.0	5,9
Doctor Test OR	D4952		Negative	
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			
Test duration 2.5 hrs.				
Heater temperature 275°C				
Flow rate 3ml/min.				
Pressure drop in mm/Hg			25	
Tube deposit less than			Code 3	4
Flash Point, °F	D56, D3828	108		
Distillation, °F	D86			
10% recovered		348	400	
50% recovered		Report		
90% recovered		Report	550	
95% recovered		465		
End Point			572	
Residue, %			1.5	
Loss, %			1.5	
OR Simulated Distillation, °F	D2887			
10% recovered			365	
50% recovered		Report		
90% recovered			579	
End Point			644	
Freezing Point, °F	D5972, D7153, D7154, D2386		-40	
Viscosity, cst. @ -4°F	D445		8.0	
Viscosity, cst. @ 104°F	D445	1.4	1.9	
Smoke Point or	D1322	25		
Smoke Point and	D1322	18		
Naphthalenes, vol. %	D1840		3.0	
Ash, wt %	D482		0.01	
Carbon residue, wt % on 10% bottom	D524		0.15	
Burning Quality	D187	Report		
Electrical Conductivity	D2624	Report		2
Additives		Report		2

**BUCKEYE PARTNERS, L.P.**

**SPECIFICATIONS FOR FUNGIBLE ULSD-1 (MOTOR VEHICLE) / AVIATION / ULSK  
GRADE 155**

*(Page 2 of 2)*

**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.
2. Only those additives specified and within the concentration noted in Section 5.2 through 5.2.2.1 of ASTM D-1655 will be considered for acceptance. The use of any other additives is prohibited. Use of all additives must be approved by Buckeye prior to shipment and must be reported on the Certificate of Analysis and Preshipment Fax of Key Properties. In addition, scheduling and Measurement & Quality Control must be notified at least 48 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) a breakdown of total metals present in the jet fuel before treating with MDA, (3) JFTOT test results both prior to and after adding MDA, (4) MDA treat rate, and (5) MDA product used.
3. Mercaptan Sulfur waived if fuel is negative by Doctor test.
4. No peacock or abnormal color deposits.
5. Sulfur level at delivery will vary depending upon the origin and delivery location.
6. Product must comply with ASTM D1655 specifications in addition to Buckeye product specifications.
7. This product is for Motor Vehicle use and should be designated as such in the EPA's Designate and Track reporting system: DMV1D015 through May 31, 2010, DMV015 as of June 1, 2010.
8. Biofuel Components (e.g. biodiesel) are not permitted in this product.
9. Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.

**SPECIFICATIONS FOR FUNGIBLE HEATING OIL 2000 PPM SULFUR  
GRADE 160**

<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	30		
Flash Point, °F(at Origin)	D93, D56	130		1
Viscosity, cst @ 104°F	D445	1.9	3.4	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F / -9 °C	
(April thru August)	D5773, DD3117		+20 °F / -7 °C	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F / -18 °C	
(April thru August)			+10°F/ -12 °C	
Total Sulfur, wt. %	D129 or D2622 or D4294 D5453		0.20	
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	
OR Simulated Distillation, °F	D2887			
50% recovered		Report		
90% recovered		572	673	
End Point			790	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Dyed		2
Dye Content, ppm (at Origin)	D6258 or Petrospec DT100	13.0	16.0	
NACE	TM0172-2001	B+		4

**NOTES:**

1. Test method D-56 may be used as an alternate to D-93 with the same limits. Test method D-93 is the referee method. Minimum flash at delivery is 125°F.
2. This product must contain red dye, standard solvent Red 26 or solvent Red 164, in concentrations of 4.6 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. All products (except aviation grades 152, 153, 155 and 182) 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. This product is for heating oil use and should be designated as HOUMRK in the EPA's Designate and Track reporting system.
7. Intended to be consistent with ASTM Grade No. 2 middle distillate fuels, unless otherwise noted.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE HEATING OIL 5000 PPM SULFUR**  
**GRADE 161**

<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	30		
Flash Point, °F(at Origin)	D93 or D56	130		1
Viscosity, cst @ 104°F	D445	1.9	3.4	
Cloud Point, °F (Sept thru March) (April thru August)	D2500, D5771, D5772, D5773, DD3117		+15 °F / -9 °C +20 °F / -7 °C	
Pour Point, °F (Sept thru March) (April thru August)	D5985, D5949, D5950, D97		0 °F / -18 °C +10°F/ -12 °C	
Total Sulfur, wt. %	D129 or D2622 or D4294 D5453		0.50	
Corrosion, 3 hrs. @ 122°F	D130		1	
Oxidation Stability, mg/100 ml or Thermal Stability, 90 minutes 150°C Pad rating	D2274  DuPont		2.5  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 50% recovered 90% recovered End Point	D86	Report 540	640 690	
OR Simulated Distillation, °F 50% recovered 90% recovered End Point	D2887	Report 572	673 790	
Haze Rating @ 77°F Procedure 2	D4176		2	
Color Visual		Dyed		2
Dye Content, ppm (at Origin)	D6258 or Petrospec DT100	13.0	16.0	
NACE	TM0172-2001	B+		4

**NOTES:**

1. Test method D-56 may be used as an alternate to D-93 with the same limits. Test method D-93 is the referee method. Minimum flash at delivery is 125 °F.
2. This product must contain red dye, standard solvent Red 26 or solvent Red 164, in concentrations of 4.6 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. All products (except aviation grades 152, 153, 155 and 182) 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. This product is for heating oil use and should be designated as HOU MRK in the EPA's Designate and Track reporting system.
2. Intended to be consistent with ASTM Grade No. 2 middle distillate fuels, unless otherwise noted.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE HEATING OIL 15 PPM SULFUR**  
**GRADE 164**

<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	30		
Flash Point, °F(at Origin)	D93 or D56	130		1
Color, ASTM	D1500		2.5	
Viscosity, cst @ 104°F	D445	1.9	4.1	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F / -9 °C	
(April thru August)	D5773, DD3117		+20 °F / -7 °C	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F / -18 °C	
(April thru August)			+10°F/ -12 °C	
Total Sulfur, ppm (at Origin)	D5453, D3120			7,8
Receipt from Refinery	D2622, D7039		10.0	
Receipt from Connecting Pipeline			11.0	3
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	
Cetane Number	D613, D6890, D7170	40		
or				
Cetane Index	D4737	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			690	
or Simulated Distillation, °C(°F)	D2887			
50% recovered			Report	
90% recovered		300(572)	356(673)	
End Point			421(790)	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Undyed		4
Additives				5
NACE	TM0172-2001	B+		9

**NOTES:**

- Test method D-56 may be used as an alternate to D-93 with the same limits. Test method D-93 is the referee method. Minimum flash at delivery is 125 °F.
- Intended to be consistent with ASTM Grade No. 2 middle distillate fuels, unless otherwise noted.
- Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.
- Product must exhibit no visible evidence of dye.
- Use of static dissipater additive or conductivity improver is prohibited.
- The use of lubricity improver additives is prohibited.
- This product is for heating oil use and should be designated as HOU MRK in the EPA's Designate and Track reporting system.
- Sulfur level at delivery will vary depending upon the origin and delivery location.
- All products (except aviation grades 152, 153, 155 and 182) 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.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE AVIATION KEROSENE - GRADE 182**

<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	15		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	
Water Reaction	D1094			
Interface Rating			1b	
MSEP (at Origin)	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			
Test duration 2.5 hrs.				
Heater temperature 275°C				
Flow rate 3ml/min.				
Pressure drop in mm/Hg			25	
Tube deposit less than			Code 3	4
Flash Point, °F	D56, D3828	108		
Distillation, °F	D86			
10% recovered			400	
20% recovered		Report		
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		
90% recovered			579	
End Point			644	
Freezing Point, °F	D5972, D7153, D7154, D2386		-40	
Viscosity, cst. @ -4°F	D445		8.0	
Smoke Point or	D1322	25		
Smoke Point and	D1322	18		
Naphthalenes, vol. %	D1840		3.0	
Electrical Conductivity	D2624	Report		2
Additives		Report		2

**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.
- Only those additives specified and within the concentration noted in Section 5.2 through 5.2.2.1 of ASTM D-1655 will be considered for acceptance. The use of any other additives is prohibited. Use of all additives must be approved by Buckeye prior to shipment and must be reported on the Certificate of Analysis and Preshipment Fax of Key Properties. In addition, scheduling and Measurement & Quality Control must be notified at least 48 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) a breakdown of total metals present in the jet fuel before treating with MDA, (3) JFTOT test results both prior to and after adding MDA, (4) MDA treat rate, and (5) MDA product used.
- Mercaptan Sulfur waived if fuel is negative by Doctor test.
- No peacock or abnormal color deposits.
- Product must comply with ASTM D1655 specifications in addition to Buckeye product specifications.
- This product should be designated "Jet Fuel" in the EPA's Designate and Track reporting system.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE ULTRA LOW SULFUR DIESEL (MOTOR VEHICLE)**  
**GRADE 190**

<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	30		
Flash Point, °F(at Origin)	D93 or D56	130		1
Color, ASTM	D1500		2.5	
Viscosity, cst @ 104°F	D445	1.9	4.1	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F / -9 °C	
(April thru August)	D5773, DD3117		+20 °F / -7 °C	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F / -18 °C	
(April thru August)			+10°F / -12 °C	
Total Sulfur, ppm (at Origin)	D5453, D3120			7,8
Receipt from Refinery	D2622, D7039		10.0	
Receipt from Connecting Pipeline			11.0	3
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	
Cetane Number	D613, D6890, D7170	40		
or				
Cetane Index	D4737	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			690	
or Simulated Distillation, °C(°F)	D2887			
50% recovered			Report	
90% recovered		300(572)	356(673)	
End Point			421(790)	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Undyed		4
Additives				5
NACE	TM0172-2001	B+		9

**NOTES:**

1. Test method D-56 may be used as an alternate to D-93 with the same limits. Test method D-93 is the referee method. Minimum flash at delivery is 125°F.
2. Intended to be consistent with ASTM Grade No. 2 middle distillate fuels, unless otherwise noted.
3. Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.
4. Product must exhibit no visible evidence of dye.
5. Use of static dissipater additive or conductivity improver is prohibited.
6. The use of lubricity improver additives is prohibited.
7. This product is for Motor Vehicle use and should be designated as such in the EPA's Designate and Track reporting system DMV2D015 through May 31, 2010, DMV015 as of June 1, 2010.
8. Sulfur level at delivery will vary depending upon the origin and delivery location.
9. All products (except aviation grades 152, 153, 155 and 182) 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).
10. Biofuel Components (e.g. biodiesel) are not permitted in this product.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE ULTRA LOW SULFUR DIESEL (NON-ROAD)**  
**GRADE 193**

<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	30		
Flash Point, °F(at Origin)	D93 or D56	130		1
Color, ASTM	D1500		2.5	
Viscosity, cst @ 104°F	D445	1.9	4.1	
Cloud Point, °F (Sept thru March)	D2500, D5771, D5772,		+15 °F / -9 °C	
(April thru August)	D5773, DD3117		+20 °F / -7 °C	
Pour Point, °F (Sept thru March)	D5985, D5949, D5950, D97		0 °F / -18 °C	
(April thru August)			+10°F / -12 °C	
Total Sulfur, ppm (at Origin)	D5453, D3120			7, 8
Receipt from Refinery	D2622, D7039		10.0	
Receipt from Connecting Pipeline			11.0	3
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	
Cetane Number	D613, D6890, D7170	40		
or				
Cetane Index	D4737	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			690	
or Simulated Distillation, °C(°F)	D2887			
50% recovered			Report	
90% recovered		300(572)	356(673)	
End Point			421(790)	
Haze Rating @ 77°F	D4176		2	
Procedure 2				
Color Visual		Undyed		4
Additives				5
NACE	TM0172-2001	B+		9

**NOTES:**

- Test method D-56 may be used as an alternate to D-93 with the same limits. Test method D-93 is the referee method. Minimum flash at delivery is 125°F.
- Intended to be consistent with ASTM Grade No. 2 middle distillate fuels, unless otherwise noted.
- Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.
- Product must exhibit no visible evidence of dye.
- Use of static dissipater additive or conductivity improver is prohibited.
- The use of lubricity improver additives is prohibited.
- This product is for Non-Road use and should be designated as DNR015 in the EPA's Designate and Track reporting system.
- Sulfur level at delivery will vary depending upon the origin and delivery location.
- All products (except aviation grades 152, 153, 155 and 182) 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.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW RVP 87 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 302**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		9.00	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Volatility and Distillation - Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW RVP 93 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 305**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		9.00	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Volatility and Distillation - Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**NOTES:**

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
2. 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 for each compound at origin.
3. Mercaptan Sulfur waived if fuel is negative by Doctor test.
4. 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.
5. The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
6. The use of MMT octane enhancing additive is prohibited.
7. The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
8. All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW RVP 91 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 307**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		91.0		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		9.00	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
T V/L = 20 with 10% ethanol	D5188			
April-September 15, Deg F		116		
All Other Volatility and Distillation - Refer to Table 2				
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW RVP SUB-OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 308**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		83.5		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		9.00	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
T V/L = 20 with 10% ethanol	D5188			
April-September 15, Deg F		116		
All Other Volatility and Distillation - Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 87 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 312**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators – <i>Refer to Table 1</i>				
RVP	D5191			
September-October			13.5	
November-March			15.0	
All other Volatility and Distillation – <i>Refer to Table 2</i>				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 93 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE – GRADE 315**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators – <i>Refer to Table 1</i>				
RVP	D5191			
September-October			13.5	
November-March			15.0	
All other Volatility and Distillation – <i>Refer to Table 2</i>				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 91 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 317**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		91.0		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - <i>Refer to Table 1</i>				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
All other distillation - <i>Refer to Table 2</i>				
TV/L with 10% ethanol	D5188			
September-October, Deg F		107		
November-March, Deg F		102		
RVP (without ethanol)	D5191			9
September-October			12.9	
November-March			14.5	
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).
- Eastern Products and Laurel:** RVP limit for 13.5 (D-4) months will be 12.9 psi; RVP limit for 15.0 months (E-5) will be 14.5 psi. **For all other product systems,** RVP limits will be 13.5 psi and 15.0 psi (refer to Table 2).
- All specifications must be certified without ethanol, except as noted above.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE SUB-OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 318**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		83.5		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - <i>Refer to Table 1</i>				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
All other distillation - <i>Refer to Table 2</i>				
TV/L with 10% ethanol	D5188			
September-October, Deg F		107		
November-March, Deg F		102		
RVP (without ethanol)	D5191			9
September-October			12.9	
November-March			14.5	
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).
- Eastern Products and Laurel:** RVP limit for 13.5 (D-4) months will be 12.9 psi; RVP limit for 15.0 months (E-5) will be 14.5 psi. **For all other product systems,** RVP limits will be 13.5 psi and 15.0 psi (refer to Table 2).
- All specifications must be certified without ethanol, except as noted above.

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 87 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 322**

<b>PRODUCT PROPERTY</b>	<b>ASTM TEST METHODS</b>	<b>TEST RESULTS</b>		<b>NOTE</b>
		<b>MINIMUM</b>	<b>MAXIMUM</b>	
Color			Undyed	
Gravity, API @ 60°F	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		7.8	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators – Refer to Table 1				
Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 93 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE – GRADE 325**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		7.8	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators – Refer to Table 1				
Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 91 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 327**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		91.0		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		7.80	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
T V/L = 20 with 10% ethanol	D5188			
April-September 15, Deg F		116		
All other Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE SUB-OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 328**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		83.5		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		7.80	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
T V/L = 20 with 10% ethanol	D5188			
April-September 15, Deg F		116		
All other Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 87 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 332**  
**(S.E. MICHIGAN DESTINATIONS ONLY)**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		6.8	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators – Refer to Table 1				
Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 93 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE – GRADE 335**  
**(S.E. MICHIGAN DESTINATIONS ONLY)**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		6.8	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators – Refer to Table 1				
Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE 91 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 337**  
**(S.E. MICHIGAN DESTINATIONS ONLY)**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		91.0		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		6.8	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
T V/L = 20 with 10% ethanol	D5188			
April-September 15, Deg F		116		
All other Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE SUB-OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 338**  
**(S.E. MICHIGAN DESTINATIONS ONLY)**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		83.5		
Index, (R+M)/2 when additized with 10% Denatured Fuel Ethanol		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		6.8	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation –	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
T V/L = 20 with 10% ethanol	D5188			
April-September 15, Deg F		116		
All other Volatility and Distillation – Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2. DI limit can apply prior to OR after blending with 10% Denatured Fuel Ethanol.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW RVP 87 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 362**  
**(FOR ETHANOL BLENDING IN ILLINOIS)**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		9.00	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
All other distillation without ethanol – Refer to Table 2				
TV/L	D5188			
With 10% ethanol, Deg F	April to October	116		
All Other Volatility without ethanol - Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**SPECIFICATIONS FOR FUNGIBLE LOW RVP 93 OCTANE**  
**MTBE-FREE CONVENTIONAL GASOLINE - GRADE 365**  
**(FOR ETHANOL BLENDING IN ILLINOIS)**

<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	D287, D1298, D4052	Report		
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygenates, vol. %	D4815, D5599, D5845		Report	2
RVP, psi (without ethanol)	D5191, D5482		9.00	
Benzene, vol. %	D3606, D4053		4.9	
Sulfur, wt. %	D2622, D5453, D3120		0.0080	
Doctor Test	D4952		Negative	3
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237, D5059		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Odor		Nonoffensive		4
Port Fuel Injector and Intake Valve Detergent Additives				5
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50) with 10% ethanol, Deg F		150	Table 2	
All other distillation without ethanol – Refer to Table 2				
TV/L	D5188			
With 10% ethanol, Deg F	April to October	116		
All Other Volatility without ethanol - Refer to Table 2				
MMT				6
Driveability Index	D4814			7
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		8

**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 for each compound 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.
- The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2.
- All products (except aviation grades 152, 153, 155 and 182) 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).

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**  
**SPECIFICATIONS FOR FUNGIBLE VOC CONTROLLED REGION 2**  
**REFORMULATED REGULAR GASOLINE BLENDSTOCK (RBOB) FOR BLENDING**  
**WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806**  
**GRADE 532**  
*(Page 1 of 2)*

<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	D287, D1298, D4052	Report		12
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygen, wt. %	D5599, GC-OFID	Report		2, 3, 9
RVP, psi	D5191		Report	3
Benzene, vol. %	D3606		1.30	
Doctor Test	D4952		Negative	4
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237 or equiv.		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Aromatics, vol. %	GCMS, D5769		50.0	3
Emissions Performance Reductions				
VOC Region 2 (Long Island), %	EPA	25.4		10
VOC Region 2 (Chicago), %	EPA	23.4		
Olefins, vol. %	D1319		25.0	
Sulfur, wt. %	D2622, D5453, D3120		.0080	
Odor		Nonoffensive		5
Port Fuel Injector and Intake Valve Detergent Additives				6
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50), Deg F		150	Table 2	
All other Volatility and Distillation – Refer to Table 2				
E200, vol. %	D86	30.0	70.0	
E300, vol. %	D86	70.0	100.0	
MMT				7
Driveability Index	D4814			8
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		11, 12

**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 denatured fuel ethanol unless otherwise noted.**

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**

**SPECIFICATIONS FOR FUNGIBLE VOC CONTROLLED REGION 2  
REFORMULATED REGULAR GASOLINE BLENDSTOCK (RBOB) FOR BLENDING  
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806  
GRADE 532**

(Page 2 of 2)

**NOTES:**

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
2. 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 for each compound at origin.
3. Refer to test methods published in 40 CFR Chapter 1, Part 80.46.
4. Mercaptan Sulfur waived if fuel is negative by Doctor test.
5. 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.
6. The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
7. The use of MMT octane enhancing additive is prohibited.
8. The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2 and will apply after blending with 10% Denatured Fuel Ethanol.
9. Oxygen content must meet a minimum of 1.5 wt. % and a maximum of 4.0 wt. % after blending with Denatured Fuel Ethanol.
10. The listed VOC reduction is required at origin. The VOC reduction at delivery will meet EPA requirements.
11. All products (except aviation grades 152, 153, 155 and 182) 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).
12. Only applies before blending with ethanol.

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**  
**SPECIFICATIONS FOR FUNGIBLE VOC CONTROLLED REGION 2**  
**REFORMULATED PREMIUM GASOLINE BLENDSTOCK (RBOB) FOR BLENDING**  
**WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806**  
**GRADE 535**  
*(Page 1 of 2)*

<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	D287, D1298, D4052	Report		12
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygen, wt. %	D5599, GC-OFID	Report		2,3, 9
RVP, psi	D5191		Report	3
Benzene, vol. %	D3606		1.30	
Doctor Test	D4952		Negative	4
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237 or equiv.		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Aromatics, vol. %	GCMS, D5769		50.0	3
Emissions Performance Reductions				
VOC Region 2, %	EPA	25.4		10
VOC Region 2 (Chicago), %	EPA	23.4		
Olefins, vol. %	D1319		25.0	
Sulfur, wt. %	D2622, D5453, D3120		.0080	
Odor		Nonoffensive		5
Port Fuel Injector and Intake Valve Detergent Additives				6
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50), Deg F		150	Table 2	
All other Volatility and Distillation – Refer to Table 2				
E200, vol. %	D86	30.0	70.0	
E300, vol. %	D86	70.0	100.0	
MMT				7
Driveability Index	D4814			8
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		11, 12

**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 denatured fuel ethanol unless otherwise noted.**

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**

**SPECIFICATIONS FOR FUNGIBLE VOC CONTROLLED REGION 2  
REFORMULATED PREMIUM GASOLINE BLENDSTOCK (RBOB) FOR BLENDING  
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806  
GRADE 535**

(Page 2 of 2)

**NOTES:**

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
2. 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 for each compound at origin.
3. Refer to test methods published in 40 CFR Chapter 1, Part 80.46.
4. Mercaptan Sulfur waived if fuel is negative by Doctor test.
5. 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.
6. The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
7. The use of MMT octane enhancing additive is prohibited.
8. The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2 and will apply after blending with 10% Denatured Fuel Ethanol.
9. Oxygen content must meet a minimum of 1.5 wt. % and a maximum of 4.0 wt. % after blending with Denatured Fuel Ethanol.
10. The listed VOC reduction is required at origin. The VOC reduction at delivery will meet EPA requirements.
11. All products (except aviation grades 152, 153, 155 and 182) 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).
12. Only applies before blending with ethanol.

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**  
**SPECIFICATIONS FOR FUNGIBLE NON-VOC CONTROLLED REGIONS 1 & 2**  
**REFORMULATED REGULAR GASOLINE BLENDSTOCK (RBOB) FOR BLENDING**  
**WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806**  
**GRADE 542**  
*(Page 1 of 2)*

<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	D287, D1298, D4052	Report		11
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygen, wt. %	D5599, GC-OFID	Report		2,3, 9
Benzene, vol. %	D3606		1.30	
Doctor Test	D4952		Negative	4
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237 or equiv.		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Aromatics, vol. %	GCMS, D5769		50.0	3
Olefins, vol. %	D1319		25.0	
Sulfur, wt. %	D2622, D5453, D3120		.0080	
Odor	Nonoffensive			5
Port Fuel Injector and Intake Valve Detergent Additives			6	
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50), Deg F		150	Table 2	
All other Volatility and Distillation – Refer to Table 2				
E200, vol. %	D86	30.0	70.0	
E300, vol. %	D86	70.0	100.0	
MMT				7
Driveability Index (DI)	D4814			8
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		10, 11

**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 denatured fuel ethanol unless otherwise noted.**

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**

**SPECIFICATIONS FOR FUNGIBLE NON-VOC CONTROLLED REGIONS 1 & 2  
REFORMULATED REGULAR GASOLINE BLENDSTOCK (RBOB) FOR BLENDING  
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806  
GRADE 542**

(Page 2 of 2)

**NOTES:**

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
2. 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 for each compound at origin.
3. Refer to test methods published in 40 CFR Chapter 1, Part 80.46.
4. Mercaptan Sulfur waived if fuel is negative by Doctor test.
5. 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.
6. The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
7. The use of MMT octane enhancing additive is prohibited.
8. The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2 and will apply after blending with 10% Denatured Fuel Ethanol.
9. Oxygen content must meet a minimum of 1.5 wt. % and a maximum of 4.0 wt. % after blending with Denatured Fuel Ethanol.
10. All products (except aviation grades 152, 153, 155 and 182) 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).
11. Only applies before blending with ethanol.

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**  
**SPECIFICATIONS FOR FUNGIBLE NON-VOC CONTROLLED REGIONS 1 & 2**  
**REFORMULATED PREMIUM GASOLINE BLENDSTOCK (RBOB) FOR BLENDING**  
**WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806**  
**GRADE 545**  
*(Page 1 of 2)*

<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	D287, D1298, D4052	Report		11
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygen, wt. %	D5599, GC-OFID	Report		2,3, 9
Benzene, vol. %	D3606		1.30	
Doctor Test	D4952		Negative	4
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237 or equiv.		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Aromatics, vol. %	GCMS, D5769		50.0	3
Olefins, vol. %	D1319		25.0	
Sulfur, wt. %	D2622, D5453, D3120		.0080	
Odor	Nonoffensive			5
Port Fuel Injector and Intake Valve Detergent Additives			6	
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50), Deg F		150	Table 2	
All other Volatility and Distillation – Refer to Table 2				
E200, vol. %	D86	30.0	70.0	
E300, vol. %	D86	70.0	100.0	
MMT				7
Driveability Index (DI)	D4814			8
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		10, 11

**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 denatured fuel ethanol unless otherwise noted.**

**BUCKEYE PARTNERS, L.P.**  
**(LONG ISLAND SYSTEM AND WOOD RIVER SYSTEM)**

**SPECIFICATIONS FOR FUNGIBLE NON-VOC CONTROLLED REGIONS 1 & 2  
REFORMULATED PREMIUM GASOLINE BLENDSTOCK (RBOB) FOR BLENDING  
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806  
GRADE 545**

(Page 2 of 2)

**NOTES:**

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
2. 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 for each compound at origin.
3. Refer to test methods published in 40 CFR Chapter 1, Part 80.46.
4. Mercaptan Sulfur waived if fuel is negative by Doctor test.
5. 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.
6. The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
7. The use of MMT octane enhancing additive is prohibited.
8. The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2 and will apply after blending with 10% Denatured Fuel Ethanol.
9. Oxygen content must meet a minimum of 1.5 wt. % and a maximum of 4.0 wt. % after blending with Denatured Fuel Ethanol.
10. All products (except aviation grades 152, 153, 155 and 182) 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).
11. Only applies before blending with ethanol.

**WOOD RIVER PIPE LINES LLC**  
**(WOOD RIVER SYSTEM – ST. LOUIS ONLY)**  
**SPECIFICATIONS FOR FUNGIBLE VOC CONTROLLED REGION 1**  
**REFORMULATED REGULAR GASOLINE BLENDSTOCK (RBOB) FOR BLENDING**  
**WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806**  
**GRADE 552**  
*(Page 1 of 2)*

<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	D287, D1298, D4052	Report		12
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Oxygen, wt. %	D5599, GC-OFID	Report		2,3, 9
RVP, psi	D5191		Report	3
Benzene, vol. %	D3606		1.30	
Doctor Test	D4952		Negative	4
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237 or equiv.		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Aromatics, vol. %	GCMS, D5769		50.0	3
Emissions Performance Reductions				
VOC Region 1, %	EPA	27.0		10
Olefins, vol. %	D1319		25.0	
Sulfur, wt. %	D2622, D5453, D3120		.0080	
Odor		Nonoffensive		5
Port Fuel Injector and Intake Valve Detergent Additives				6
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50), Deg F		150	Table 2	
All other Volatility and Distillation – Refer to Table 2				
E200, vol. %	D86	30.0	70.0	
E300, vol. %	D86	70.0	100.0	
MMT				7
Driveability Index	D4814			8
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		11, 12

**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 denatured fuel ethanol unless otherwise noted.**

**WOOD RIVER PIPE LINES LLC  
(WOOD RIVER SYSTEM – ST. LOUIS ONLY)**

**SPECIFICATIONS FOR FUNGIBLE VOC CONTROLLED REGION 1  
REFORMULATED REGULAR GASOLINE BLENDSTOCK (RBOB) FOR BLENDING  
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806  
GRADE 552**

(Page 2 of 2)

**NOTES:**

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
2. 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 for each compound at origin.
3. Refer to test methods published in 40 CFR Chapter 1, Part 80.46.
4. Mercaptan Sulfur waived if fuel is negative by Doctor test.
5. 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.
6. The use of Port Fuel Injector (PFI) and intake valve detergent additives is prohibited.
7. The use of MMT octane enhancing additive is prohibited.
8. The Driveability Index (DI) specification limits are applicable at the refinery or import facility as defined by 40 CFR Part 80.2 and will apply after blending with 10% Denatured Fuel Ethanol.
9. Oxygen content must meet a minimum of 1.5 wt. % and a maximum of 4.0 wt. % after blending with Denatured Fuel Ethanol.
10. The listed VOC reduction is required at origin. The VOC reduction at delivery will meet EPA requirements.
11. All products (except aviation grades 152, 153, 155 and 182) 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).
12. Only applies before blending with ethanol.

**WOOD RIVER PIPE LINES LLC**  
**(WOOD RIVER SYSTEM – ST. LOUIS ONLY)**  
**SPECIFICATIONS FOR FUNGIBLE VOC CONTROLLED REGION 1**  
**REFORMULATED PREMIUM GASOLINE BLENDSTOCK (RBOB) FOR BLENDING**  
**WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806**  
**GRADE 555**  
*(Page 1 of 2)*

<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	D287, D1298, D4052	Report		12
Corrosion, 3 hrs. @ 122°F	D130		1	1
Octane Rating				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
Oxygen, wt. %	D5599, GC-OFID	Report		2,3, 9
RVP, psi	D5191		Report	3
Benzene, vol. %	D3606		1.30	
Doctor Test	D4952		Negative	4
OR				
Mercaptan Sulfur, wt. %	D3227		0.002	
Lead Content, gms/gal	D3237 or equiv.		0.01	
Phosphorous, gms/gal	D3231		0.004	
Gum, mg/100ml (after washing)	D381		4	
Oxidation Stability, minutes	D525	240		
Aromatics, vol. %	GCMS, D5769		50.0	3
Emissions Performance Reductions				
VOC Region 1, %	EPA	27.0		10
Olefins, vol. %	D1319		25.0	
Sulfur, wt. %	D2622, D5453, D3120		.0080	
Odor		Nonoffensive		5
Port Fuel Injector and Intake Valve Detergent Additives				6
Corrosion Inhibitors, Gum Inhibitors and Metal Deactivators - Refer to Table 1				
Distillation -	D86			
50% Evap (T50), Deg F		150	Table 2	
All other Volatility and Distillation – Refer to Table 2				
E200, vol. %	D86	30.0	70.0	
E300, vol. %	D86	70.0	100.0	
MMT				7
Driveability Index	D4814			8
Refer to Table 2				
Silver Strip Corrosion	D4814		1	
NACE	TM0172-2001	B+		11, 12

**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 denatured fuel ethanol unless otherwise noted.**

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REFORMULATED PREMIUM GASOLINE BLENDSTOCK (RBOB) FOR BLENDING  
WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806  
GRADE 555**

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**NOTES:**

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline.
2. 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 for each compound at origin.
3. Refer to test methods published in 40 CFR Chapter 1, Part 80.46.
4. Mercaptan Sulfur waived if fuel is negative by Doctor test.
5. 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.
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