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 (I-ethyl-2-methylpentyl) para-phenylenediamine
N, N'di-ispropyl-para-phenylenediamine	N, N'bis- (I, 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:

Nalco 5403	Spec-Aid 8Q22	Innospec DCI-4A	Tolad 245	Lubrizol 541
Nalco 5405	Spec-Aid 8Q100	Innospec DCI-6A	Tolad 249	Lubrizol 8014
Nalco 5406	Spec-Aid 8Q101	Innospec DCI-11	Tolad 351	Lubrizol 8017
Nalco EC5624A	Spec-Aid 8Q102	Innospec DCI-30.N	Tolad 3232	Afton Chemical HiTEC 4875
Nalco EC5626A	Spec-Aid 8Q103	UOP Unicor	Tolad 3232D	Afton Chemical HiTEC 6455
Unichem 7500	Spec-Aid 8Q106	UOP Unicor J	Tolad 4410	Mobil C-605
Unichem 7501	Spec-Aid 8Q109	UOP Unicor PL	Tolad 9711	Aqua Process 11CH77
Unichem 7510	Spec-Aid 8Q110	Champion RPS-622	Tolad 9715	Corexit 5267
MidContinental Chem. MCC5001	Spec-Aid 8Q112ULS	Champion RPS-807	Tolad 9719	
Athlon RPS-661	Spec-Aid 8Q123ULS	Ethyl HiTec 580		

For Diesel Fuels and Fuel Oil

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

	-1		
Dupont	AFA	Innospec	DMA-4
Nalco	EC 5407-A	Nalco	5400-A
Tolad	3032	Infineum	R511
Athlon	RPS-661		

NOTE: *All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172 ~~2001~~ (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).*

STATIC DISSIPATOR ADDITIVE (SDA) OR CONDUCTIVITY IMPROVER

Product shipments may, but are not required to, contain static dissipator/electrical conductivity additive (SDA). The only approved SDAs for use on Buckeye Pipe Line is Innospec Stadis 450 and AvGuard SDA. SDA is prohibited from all jet fuel / aviation kerosene grades. The origin maximum concentration of Stadis 450 or AvGuard SDA is 0.75 mg/l, and the origin maximum conductivity allowed is 250 pS/m at 70°F by ASTM D2624.

AVIATION (JET FUEL) ADDITIVES

Product shall only contain antioxidants and metal deactivators specified and within the concentration noted in the latest ASTM D1655 with advance approval from Buckeye prior to shipment. Use of these additives is expected to be short term at reasonable treat levels, and is to be clearly indicated on the CoA. All other additives are prohibited. Buckeye reserves the right to deny shipment of product containing these additives. In addition, scheduling and Measurement & Quality Control must be notified at least 72 hours prior to the scheduled shipment of any batches containing Metal Deactivator Additive (MDA). If MDA has been added to the product, Buckeye reserves the right to refuse shipment. If requesting to move a batch that has been treated with MDA, supply the following information to Buckeye Measurement & Quality Control: (1) the purpose for adding MDA, (2) JFTOT test results both prior to and after adding MDA, (3) MDA treat rate, and (4) MDA product used.

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. (1)	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)
End Point, Deg F (Deg C) Max.	**430 (221)**	**430 (221)**	**430 (221)**	**430 (221)**
Driveability Index Deg F (Deg C) Max. (2)	1250 (597)	1230 (586)	1220 (580)	1200 (569)

CLASS	1	2	3	4	5
Min Vapor/Liquid Ratio (TV/L) 20 °F (°C) [ASTM D-5188][1]	133 (56)	133 (56)	124 (51)	116 (47)	105 (41)

Approximate Origin Maximum RVP and Distillation Requirements[1]

Destination		Jan	Feb	Mar 1-14	Mar 15-31	Apr 1-15	Apr 16-30	May	Jun	Jul	Aug	Sep 1-15	Sep 16-30	Oct	Nov	Dec
JET LINES (MA/CT)[4]	**psi**	**15.0**	**15.0**	**15.0**	**13.5**	**7.20**	**7.20**	**7.40**	**7.40**	**7.40**	**7.40**	**7.40**	**13.5**	**13.5**	**15.0**	**15.0**
	dist	**E-5**	**E-5**	**E-5**	**D-4**	**A-4**	**A-4**	**A-3**	**A-3**	**A-3**	**A-3**	**A-3**	**D-4**	**D-4**	**E-5**	**E-5**
Maine (To Bangor)	**psi**	**15.0**	**15.0**	**15.0**	**13.5**	**7.80**	**7.80**	**7.80**	**7.80**	**7.80**	**7.80**	**7.80**	**13.5**	**13.5**	**15.0**	**15.0**
	dist	**E-5**	**E-5**	**E-5**	**D-4**	**A-4**	**A-4**	**A-3**	**A-3**	**A-3**	**A-3**	**A-3**	**D-4**	**D-4**	**E-5**	**E-5**
Wood River (St. Louis)[4]	**psi**	**15.0**	**15.0**	**13.5**	**13.5**	**7.40**	**7.40**	**7.40**	**7.40**	**7.40**	**7.40**	**7.40**	**11.5**	**13.5**	**13.5**	**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**	**D-4**	**E-5**
Midwest and Wood River (All other)	**psi**	**15.0**	**15.0**	**13.5**	**13.5**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**11.5**	**13.5**	**15/13.5**	**15.0**
	dist	**E-5**	**E-5**	**D-4**	**D-4**	**A-4**	**A-4**	**A-3**	**A-3**	**A-3**	**A-3**	**A-3**	**C-3**	**D-4**	**E-5**	**E-5**
Lower V (Dubuque to IA)	**psi**	**15.0**	**15.0**	**13.5**	**13.5**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**11.5**	**13.5**	**15.0**	**15.0**
	dist	**E-5**	**E-5**	**D-4**	**D-4**	**A-3**	**A-3**	**A-3**	**A-3**	**A-3**	**A-3**	**A-3**	**C-3**	**D-4**	**E-5**	**E-5**
Lower V (Dubuque to MO and KS)	**psi**	**15.0**	**13.5**	**13.5**	**11.5**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**9.00**	**11.5**	**13.5**	**13.5**	**15.0**
	dist	**E-5**	**D-4**	**D-4**	**C-3**	**A-3**	**A-3**	**A-2**	**A-2**	**A-2**	**A-2**	**A-2**	**C-3**	**D-4**	**D-4**	**E-5**
Lower V (Low RVP Areas)	**psi**	**15.0**	**13.5**	**11.5**	**11.5**	**6.80**	**6.80**	**6.80**	**6.80**	**6.80**	**6.80**	**6.80**	**11.5**	**13.5**	**13.5**	**15.0**
	dist	**E-5**	**D-4**	**C-3**	**C-3**	**A-2**	**A-2**	**A-2**	**A-2**	**A-2**	**A-2**	**A-2**	**C-3**	**D-4**	**D-4**	**E-5**

(1) Computer and Linear methods may be used to determine TV/L value. D5188 will be the referee method. TV/L and T50 limits provided in Table 2 are for the base gasoline only; additional TV/L and T50 limits for ethanol blended gasoline are found in individual Grade Code specifications. T50, TV/L and RVP limits for all RBOB's and gasoline must comply with the applicable requirements of the area in which the fuel is destined for retail. Maximum Distillation residue is 2% Vol for all base gasoline.

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

(3) 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 1090.

(4) The 7.4 RVP limit for MA, CT, St.. Louis and all RBOB areas is after 10% ethanol blend

(5) This section is for reference. RVP and Distillation requirements for fungible products are defined by fungible Grade Code.

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR FUNGIBLE LOW SULFUR DIESEL (LM500)
GRADE 132

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	TEST RESULTS MAXIMUM	NOTE
Gravity, API @ 60ºF	D4052, ~~D287,~~	30		
Flash Point, ºF (at Origin)	D93, ~~D56, D7094~~	130		1
Color, ASTM	D1500, D6045		2.5	
Viscosity, cst @ 104ºF	D445	1.9	3.4	
Cloud Point, ºF (Sept thru March)	D2500, ~~D5771, D5772,~~		+15 ºF	
(April thru August)	~~D5773, D3117~~		+20 ºF	
Pour Point, ºF (Sept thru March)	D5985, D5949, D5950, D97		0 ºF	
(April thru August)			+10ºF	
Total Sulfur, wt. %	D5453, ~~D1266, D2622 or D4294~~		0.042	
Corrosion, 3 hrs. @ 122ºF	D130		1	
Oxidation Stability, mg/100 ml or	D2274		2.5	
Thermal Stability, 90 minutes				
150ºC 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 or Index	D613, ~~D4737, 6890,D7170~~	40		
Aromatics (Vol%)	D1319		35.0	
or Aromatics by Cetane Index	D976	40		
Physical Distillation, ºF	D86			12
50% recovered		Report		
90% recovered		540	640	
End Point			700	
~~OR Simulated Distillation, ºF~~	~~D2887~~			
~~50% recovered~~		~~Report~~		
~~90% recovered~~		~~572~~	~~673~~	
~~End Point~~			~~790~~	
Haze Rating @ 77ºF	D4176		2	
Procedure 2				
Color Visual		Undyed		4
Additives				5, 6
Electrical Conductivity, pS/m @ 70°F	D2624		250	5
NACE	TM0172~~-2001~~	B+		7
Biodiesel (FAME) %	D7371, EN14078		0.0	9,10

NOTES:

1. Test method D-93 is the referee method. Minimum flash at delivery is 125 ºF.
2. Intended to be consistent with ASTM D975 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/conductivity improver is restricted (See Table 1).
6. The use of lubricity improver additives is prohibited.
7. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172~~-2001~~ (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
8. This product is designated as LM 500 diesel fuel (500 ppm sulfur LM diesel fuel). For use in accordance with a compliance plan under 40 CFR 1090.520(g). Not for use in highway vehicles or other nonroad vehicles and engines.
9. Biofuel Components (e.g. biodiesel) are not permitted in this product.
10. Shipments of this Grade Code are limited to less than 5.0% renewable diesel. Renewable diesel is a liquid fuel derived from 100% hydrotreated biomass that meets the registration requirements for fuels and fuel additives established by the EPA under Section 211 of the Clean Air Act and the requirements of ASTM D975. Fuel containing fatty acid esters (FAME, FAEE, or other esters) is prohibited.
11. Buckeye will accept test method results as listed in ASTM D975 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
12. Simulated distillation (D2887) is allowed, but must be correlated to D86.

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR ULTRA LOW SULFUR KEROSENE
CERTIFIED NTDF - GRADE 150

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	MAXIMUM	NOTE
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)	D613, ~~D976, D4737 D6890~~	40		
Total Sulfur, ppm (at receipt)	D5453, ~~D4294~~		11	5,7,8,9
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			11
10% recovered		Report	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	D2386, ~~D5972, D7153, D7154~~		-22	
Viscosity, cst. @ 104°F	D445	1.3	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:

1. Product shall be clear (referring to clarity, not color) and bright and free of suspended matter.
2. 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.
3. Mercaptan Sulfur waived if fuel is negative by Doctor test.
4. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172~~-2001~~ (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
5. This fuel is designated for non-transportation use (Certified NTDF – 15 ppm sulfur Max) and kerosene.
6. Biofuel Components (e.g. biodiesel) are not permitted in this product.
7. Intended to be consistent with ASTM Grade No. 1 middle distillate fuels, unless otherwise noted.
8. Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.
9. Sulfur level at delivery will vary depending upon the origin and delivery location.
10. Buckeye will accept test method results as listed in ASTM D975 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
11. Simulated distillation (D2887) is allowed, but must be correlated to D86.

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

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	MAXIMUM	NOTE
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)	D613, ~~D976,D4737,D6890~~	40		
Total Sulfur, ppm (at receipt)	D5453, ~~D4294~~		11	4,5,8,9
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			11
10% recovered		Report	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	D2386, ~~D5972, D7153, D7154,~~		-22	
Viscosity, cst. @ 104°F	D445	1.3	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:

1. Product shall be clear (referring to clarity, not color) and bright and free of suspended matter.
2. 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.
3. Mercaptan Sulfur waived if fuel is negative by Doctor test.
4. This product is for Motor Vehicle use and is designated as ULSD (Max 15 ppm sulfur).
5. Receipts from Wolverine Pipe Line will be accepted at a maximum of 12.0 ppm sulfur.
6. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172~~-2001~~ (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
7. Biofuel Components (e.g. biodiesel) are not permitted in this product.
8. Intended to be consistent with ASTM Grade No. 1 middle distillate fuels, unless otherwise noted.
9. Sulfur level at delivery will vary depending upon the origin and delivery location.
10. Buckeye will accept test method results as listed in ASTM D975 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
11. Simulated distillation (D2887) is allowed, but must be correlated to D86.

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

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	MAXIMUM	NOTE
Appearance	White Bucket	Report		
Color, at origin	D156, D6045	18		1
at delivery		+16		
Gravity, API @ 60ºF	D287, D1298 or D4052	37	51	
Net Heat of Combustion, BTU/lb.	D3338, D4809,D4529	18,400		
Corrosion, 2 hrs. @ 212ºF	D130		1	
Cetane Index	D976, D4737	40		
MSEP (refinery origin)	D3948	85		
(downstream of refinery)	D7224, D3948	85		
Sulfur, ppm (at receipt)	D2622, D4294, D5453		11	5,9
	D1266,			
Doctor Test, OR	D4952		Negative	
Mercaptan Sulfur, wt. %	D3227		0.003	3
Aromatics, vol. %, OR	D1319		25	
Aromatics, vol%	D6379		26.5	
Total Acidity, mg. KOH/g	D3242		0.10	
Existent Gum, mg/100 ml.	D381		7	
THERMAL STABILITY (JFTOT)	D3241			4
(2.5 hrs at control temperature 275ºC)				
Filter Pressure drop, mm/Hg			25	
Tube Rating: One of the following requirements shall be met:				
(1) Annex A1 VTR, VTR color code			Less than 3 No peacock or abnormal color deposits	
(2) Annex A2 ITR or Annex 3 ETR nm average over area of 2.5 mm^2			85	
Flash Point, ºF	D56, D3828	105		
Distillation, ºF	D86		10	
10% recovered		Report	401	
50% recovered		Report		
90% recovered		Report	550	
End Point			572	
Residue, %			1.5	
Loss, %			1.5	
~~OR Simulated Distillation, ºF~~	~~D2887~~			
~~10% recovered~~			~~365~~	
~~50% recovered~~		~~Report~~		
~~90% recovered~~			~~579~~	
~~End Point~~			~~644~~	
Freezing Point, ºF	D5972, D7153, D7154, D2386		-40	
Viscosity, cst. @ -4ºF	D445, D7945		8.0	
Viscosity, cst. @ 104ºF	D445	1.3	1.9	
Smoke Point or	D1322	25.0		
Smoke Point and	D1322	18.0		
Naphthalenes, vol. %	D1840		3.0	
Ash, wt %	D482		0.01	
Carbon residue, wt % on 10% bottom	D524		0.15	
Burn Quality				
Time of Burning	D187	Min 16 h continuous after first weighing		
Burning Quality	IP 10	18 to 26 g/h after first weighing		
Chimney Appearance	D187	Max light white deposit (at end of test)		
Flame Characteristics	D187	Maximum variance of flame width (6mm) & flame height lowered (5 mm)		
Electrical Conductivity	D2624	Report		2
Additives		Report		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. Product shall only contain antioxidants and metal deactivators specified and within the concentration noted in the latest ASTM D1655 with advance approval from Buckeye prior to shipment. Use of these additives is expected to be short term at reasonable treat levels, and is to be clearly indicated on the CoA. All other additives are prohibited. Buckeye reserves the right to deny shipment of product containing these additives. In addition, Scheduling and Measurement & Quality Control must be notified at least 72 hours prior to the scheduled shipment of any batches containing Metal Deactivator Additive (MDA). If MDA has been added to the product, Buckeye reserves the right to refuse shipment. If requesting to move a batch that has been treated with MDA, supply the following information to Buckeye Measurement & Quality Control: (1) the purpose for adding MDA, (2) JFTOT test results both prior to and after adding MDA, (3) MDA treat rate, and (4) MDA product used.
3. Mercaptan Sulfur waived if fuel is negative by Doctor test.
4. Refer to ASTM D1655 note M for referee method.
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. Buckeye will accept test methods that are listed in ASTM D1655. Test methods listed above are considered referee methods by Buckeye Pipe Line.
7. This product is for Motor Vehicle use and is designated as ULSD (Max 15 ppm sulfur).
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.
10. Simulated distillation (D2887) is allowed, but must be correlated to D86.

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BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR FUNGIBLE HEATING OIL15 PPM SULFUR (UNDYED)
CERTIFIED NTDF - GRADE 164

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	TEST RESULTS MAXIMUM	NOTE
Gravity, API @ 60ºF	D4052, ~~D287,D1298~~	30		
Flash Point, ºF(at Origin)	D93, ~~D56, D7094~~	130		1
Color, ASTM	D1500, D6045		2.5	
Viscosity, cst @ 104ºF	D445, ~~D7042~~	1.9	4.1	
Cloud Point, ºF (Sept thru March)	D2500, ~~D5771, D5772,~~		+15 ºF	
(April thru August)	~~D5773, D3117, D7683~~		+20 ºF	
Pour Point, ºF (Sept thru March)	D5985, D5949, D5950, D97		0 ºF	
(April thru August)			+10ºF	
Total Sulfur, ppm (at receipt)	D5453, ~~D3120,D4294,D2622, D7039~~		11	3,7,10
Corrosion, 3 hrs. @ 122ºF	D130		1	
Oxidation Stability, mg/100 ml OR	D2274		2.5	
Thermal Stability, 90 minutes				
150ºC Pad rating OR	DuPont		7	
Thermal Stability, Y/Green	D6468	73%		
W Unit		65%		
Carbon Residue, wt. % on 10% bottom	D524 ~~or D4530~~		0.35	
Ash, wt. %	D482		0.01	
Sediment and Water, % by volume	D2709		0.05	
Cetane Number or Index	D613, ~~D4737,D6890,D7170~~	40		
Aromatics (Vol%)	D1319		35.0	
or Aromatics by Cetane Index	D976	40		
Distillation, ºF	D86			13
50% recovered		Report		
90% recovered		540	640	
End Point			700	
~~or Simulated Distillation, °C(°F)~~	~~D2887~~			
~~50% recovered~~			~~Report~~	
~~90% recovered~~		~~300(572)~~	~~356(673)~~	
~~End Point~~			~~421(790)~~	
Haze Rating @ 77ºF	D4176		2	
Procedure 2				
Biodiesel (FAME) %	D7371, EN14078		0.0	9, 11
Color Visual		Undyed		4
Additives				5, 6
Electrical Conductivity, pS/m @ 70°F	D2624		250	5
NACE	TM0172~~-2001~~	B+		8

NOTES:

1. Test method D-93 is the referee method. Minimum flash at delivery is 125 ºF.
2. Intended to be consistent with ASTM D975 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/conductivity improver is restricted (See Table 1).
6. The use of lubricity improver additives is prohibited.
7. This fuel is designated for non-transportation use (Certified NTDF – 15 ppm sulfur Max) and for heating oil use (Heating Oil (Max 15 ppm sulfur ULSHO)).
8. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172~~-2001~~ (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
9. Biofuel Components (e.g. biodiesel, FAME) are not permitted in this product. Results must be <LDL of the test method (i.e. <1.0% per D7371, or <0.50% per EN14078).
10. Sulfur level at delivery will vary depending upon the origin and delivery location.
11. Shipments of this Grade Code are limited to less than 5.0% renewable diesel. Renewable diesel is a liquid fuel derived from 100% hydrotreated biomass that meets the registration requirements for fuels and fuel additives established by the EPA under Section 211 of the Clean Air Act and the requirements of ASTM D975. Fuel containing fatty acid esters (FAME, FAEE, or other esters) is prohibited.
12. Buckeye will accept test method results as listed in ASTM D975 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
13. Simulated distillation (D2887) is allowed, but must be correlated to D86.

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR FUNGIBLE AVIATION KEROSENE - GRADE 182 & 188

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	TEST RESULTS MAXIMUM	NOTE
Appearance	White Bucket	Undyed		1
Color	D156, D6045	18		1
Gravity, API @ 60°F	~~D287~~, D1298, D4052	37	51	
Net Heat of Combustion, BTU/lb.	D3338, ~~D4529, D4809~~	18,400		
Corrosion, 2 hrs. @ 212°F	D130		1	
MSEP (refinery origin)	D3948	85		
(downstream of refinery)	D7224, D3948	85		
Sulfur, wt. %	D4294 ~~D2622, D5453, D1266~~		See below Table	

Jet Fuel Maximum Sulfur Table

Grade Code	Max Sulfur, wt %
182	0.30
188	0.0011

Doctor Test OR	D4952		Negative (Sweet)	
Mercaptan Sulfur, wt. %	D3227		0.003	3
Aromatics, vol. %, OR	D1319		25	
Aromatics, vol%	D6379		26.5	
Total Acidity, mg. KOH/g	D3242		0.10	
Existent Gum, mg/100 ml.	D381		7	
THERMAL STABILITY (JFTOT)	D3241			4
(2.5 hrs at control temperature 275°C)				
Filter Pressure drop, mm/Hg			25	
Tube Rating: One of the following requirements shall be met:				
(1) Annex A1 VTR, VTR color code			Less than 3 No peacock or abnormal color deposits	
(2) Annex A2 ITR or Annex 3 ETR nm average over area of 2.5 mm^2			85	
Flash Point, °F	D56, D3828	105		
Distillation, °F	D86			7
10% recovered			401	
50% recovered		Report		
90% recovered		Report		
End Point			572	
Residue, %			1.5	
Loss, %			1.5	
~~OR Simulated Distillation, °F~~	~~D2887~~			
~~10% recovered~~			~~365~~	
~~50% recovered~~		~~Report~~		
~~End Point~~			~~644~~	
Freezing Point, °F	D2386, ~~D5972, D7153, D7154~~		-40	
Viscosity, cst. @ -4°F	D445, ~~D7945~~		8.0	
One of the following shall be met				
(1) Smoke Point, mm, or	D1322	25.0		
(2) Smoke Point, mm, and	D1322	18.0		
Naphthalenes, vol. %	D1840		3.0	
Electrical Conductivity	D2624	Report		2
Additives		Report		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. Product shall only contain antioxidants and metal deactivators specified and within the concentration noted in the latest ASTM D1655 with advance approval from Buckeye prior to shipment. Use of these additives is expected to be short term at reasonable treat levels, and is to be clearly indicated on the CoA. All other additives are prohibited. Buckeye reserves the right to deny shipment of product containing these additives. In addition, Scheduling and Measurement & Quality Control must be notified at least 72 hours prior to the scheduled shipment of any batches containing Metal Deactivator Additive (MDA). If MDA has been added to the product, Buckeye reserves the right to refuse shipment. If requesting to move a batch that has been treated with MDA, supply the following information to Buckeye Measurement & Quality Control: (1) the purpose for adding MDA, (2) JFTOT test results both prior to and after adding MDA, (3) MDA treat rate, and (4) MDA product used.
3. Mercaptan Sulfur waived if fuel is negative by Doctor test.
4. Refer to ASTM D1655 Table 1 Thermal Stability note ~~M~~ for referee method.
5. Product must comply with ASTM D1655 specifications in addition to Buckeye product specifications. Buckeye will accept test methods that are listed in ASTM D1655. Test methods listed above are considered referee methods by Buckeye Pipe Line.
6. Designated as Jet Fuel. This fuel is for aviation use only. Not for use in highway vehicles or engines, or NRLM engines.
7. Simulated distillation (D2887) is allowed, but must be correlated to D86.

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

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	TEST RESULTS MAXIMUM	NOTE
Gravity, API @ 60ºF	D4052, ~~D287, D1298~~	30		
Flash Point, ºF(at Origin)	D93, ~~D56, D7094~~	130		1
(Maine only - Dec thru March 14)		120		6
Color, ASTM	D1500, D6045		2.5	
Viscosity, cst @ 104ºF	D445, ~~D7042~~	1.9	4.1	
(Maine only - Dec thru March 14)		1.7		6
Cloud Point, ºF (Sept thru March)	D2500, ~~D5771, D5772,~~		+15 ºF	
(April thru August)	~~D5773, D3117, D7683~~		+20 ºF	
(Maine only - Dec thru March 14)			-16 ºF	6
Pour Point, ºF (Sept thru March)	D97, D5985, D5949, D5950		0 ºF	
(April thru August)			+10ºF	
Total Sulfur, ppm (at receipt)	D5453, ~~D3120, D2622, D7039, D4294~~		11	3,7,8
Corrosion, 3 hrs. @ 122ºF	D130		1	
Oxidation Stability, mg/100 ml OR	D2274		2.5	
Thermal Stability, 90 minutes				
150ºC Pad rating OR	DuPont		7	
Thermal Stability, Y/Green	D6468	73%		
W Unit		65%		
Carbon Residue, wt. % on 10% bottom	D524 ~~or D4530~~		0.35	
Ash, wt. %	D482		0.01	
Sediment and Water, % by volume	D2709		0.05	
Cetane Number or Index	D613,~~D6890,D7170,D4737~~	40		
Aromatics (Vol%)	D1319		35.0	
or Aromatics by Cetane Index	D976	40		
Distillation, ºF	D86			13
50% recovered		Report		
90% recovered		540	640	
End Point			700	
~~or Simulated Distillation, °C(°F)~~	~~D2887~~			
~~50% recovered~~			~~Report~~	
~~90% recovered~~		~~300(572)~~	~~356(673)~~	
~~End Point~~			~~421(790)~~	
Haze Rating @ 77ºF	D4176		2	
Procedure 2				
Biodiesel (FAME) %	D7371, EN14078		0.0	10,11
Color Visual		Undyed		4
Additives				5
Electrical Conductivity, pS/m @ 70°F	D2624		250	5
NACE	TM0172~~-2001~~	B+		9

NOTES:

1. Test method D-93 is the referee method. Minimum flash at delivery is 125 ˚F.
2. Intended to be consistent with ASTM D975 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/conductivity improver is restricted (See Table 1). Lubricity improver additive is prohibited.
6. For winter (December 1 through March 14) receipt of ULSD in State of Maine only.
7. This product is for Motor Vehicle use and is designated as ULSD (Max 15 ppm sulfur ULSD)
8. Sulfur level at delivery will vary depending upon the origin and delivery location.
9. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172~~-2001~~.
10. Biofuel Components (e.g. biodiesel, FAME) are not permitted in this product. Results must be <LDL of the test method (i.e. <1.0% per D7371, or <0.50% per EN14078).
11. Shipments of this Grade Code are limited to less than 5.0% renewable diesel. Renewable diesel is a liquid fuel derived from 100% hydrotreated biomass that meets the registration requirements for fuels and fuel additives established by the EPA under Section 211 of the Clean Air Act and the requirements of ASTM D975. Fuel containing fatty acid esters (FAME, FAEE, or other esters) is prohibited.
12. Buckeye will accept test method results as listed in ASTM D975 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
13. Simulated distillation (D2887) is allowed, but must be correlated to D86.

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR FUNGIBLE CONVENTIONAL GASOLINE BLENDSTOCK
REGULAR CBOB GRADES 308, 318, 328, 338, 358, 378
PREMIUM CBOB GRADES 307, 317, 327, 337, 357, 377

SPECIFICATIONS FOR CBOB GASOLINE PRIOR TO ETHANOL ADDITION

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	TEST RESULTS MAXIMUM	NOTE
Color			Undyed	
Gravity, API @ 60°F	D4052	Report		
Haze Rating @ 77°F (Procedure 2)	D4176		2	
Oxygen Content, weight %	D5599		0.05	2,4
Oxidation Stability, minutes	D525	240		
NACE	TM0172-~~2001~~	B+		1,8
RVP, psi (without ethanol)	D5191		See Table CB-1	9,11,12
Sulfur, ppm	D2622		80	14
Corrosion (Copper), 3 hrs. @ 122°F	D130		1	1,14
Corrosion (Silver Strip) 3 hrs. @ 122°F	D7671		1	1,14
Benzene, vol. %	D3606		3.8	14
Doctor Test	D4952		Negative	3,14
Or Mercaptan Sulfur, wt. %	D3227		0.002	14
Phosphorous, gms/gal	D3231		0.004	14
Solvent washed Gum, mg/100ml	D381		4	
Octane Rating for 90 Octane Grades (Neat) (307, 317, 327, 337, 357, 377)				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		90.0		13

Premium CBOB Grades specification limit before blending with denatured fuel ethanol also include: R+M/2 Octane rating minimum = 90.0; Distillation T50 minimum = 170°F; TV/L minimum as follows: Grades 337/327/307/377= 124°F, Grade 357 = 116°F, and Grade 317 = 105°F.

RVP SPECIFICATIONS FOR CBOB GASOLINE (BEFORE & AFTER 10% ETHANOL)

Table CB-1 - RVP Maximum Table

Grade Code	BEFORE BLENDING WITH 10% ETHANOL Max RVP, psi (without ethanol)	AFTER BLENDING WITH 10% ETHANOL Max RVP, psi (with 10% ethanol)
337, 338	7.00	8.00
327, 328	7.80 [B]	9.00 [D]
307, 308	9.00 [A]	10.00 [C]
377, 378	11.5	12.5
357, 358	13.5 12.9 (East, Laurel, Paulsboro, LI)*	14.5 13.5 (East, Laurel, Paulsboro, LI)**
317, 318	15.0 14.5 (East, Laurel, Paulsboro, LI)*	15.5 15.0 (East, Laurel, Paulsboro, LI)**

**** Eastern Products (E), Paulsboro (P), Long Island (I) and Laurel (L)***: Before E10 Blending (Neat) RVP limit for 13.5 months is 12.9 psi; RVP limit for 15 psi months is 14.5 psi. ***For all other product systems***, Neat RVP limit is 13.5 psi and 15.0 psi. See T4 Scheduling Calendar for RVP stepdown dates/cycles for each system.

***** Eastern Products (E), Paulsboro (P), Long Island (I) and Laurel (L)***: After E10 Blending RVP limit for 13.5 months is 13.5 psi; RVP limit for 15.0 months is 15.0 psi. ***For all other product systems***, E10 RVP limit is 14.5 psi and 15.5 psi. See RVP Calendars in Section 6.8 for RVP stepdown dates/cycles for each system.

[A] Max RVP of 8.8 psi (without ethanol) for batches receipted into Buckeye during March and April
[B] Max RVP of 7.6 psi (without ethanol) for batches receipted into Buckeye during March and April
[C] Max RVP of 9.8 psi (with 10% ethanol) for batches receipted into Buckeye during March and April
[D] Max RVP of 8.8 psi (with 10% ethanol) for batches receipted into Buckeye during March and April

SPECIFICATIONS WITH 10% DENATURED ETHANOL AS DEFINED IN ASTM D4806

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	TEST RESULTS MAXIMUM	NOTE
~~Corrosion (Copper), 3 hrs. @ 122ºF~~	~~D130~~		~~1~~	~~1~~
~~Corrosion (Silver Strip) 3 hrs. @ 122ºF~~	~~D7671~~		~~1~~	~~1~~
~~Benzene, vol. %~~	~~D3606~~		~~3.8~~	
~~Doctor Test~~	~~D4952~~		~~Negative~~	~~3~~
~~Or Mercaptan Sulfur, wt. %~~	~~D3227~~		~~0.002~~	
~~Lead Content, gms/gal~~	~~D3237, D5059~~		~~0.01~~	
~~Phosphorous, gms/gal~~	~~D3231~~		~~0.004~~	
~~Solvent washed Gum, mg/100ml~~	~~D381~~		~~4~~	
Octane Rating with 10% Denatured Fuel Ethanol				5,6
Regular Grades (308, 318, 328, 338, 358, 378)				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Premium Grades (307, 317, 327, 337, 357, 377)				13
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
RVP, psi with 10% Denatured Fuel Ethanol	D5191	Refer to Table CB-1		9,11,12
Distillation**	D86	Refer to Table CB-2		
TV/L 20, Deg F **	D5188	Refer to Table CB-2		10
Driveability Index	D4814	Refer to Table CB-2		

Table CB-2 - TV/L and Distillation Table (all limits with 10% Ethanol)

Grade Code	Min TV/L = 20, °F (°C)	Driveability Index (°F Max)	Distillation °F (°C) D86					
			10% Evap, Deg F (Deg C) Max.	50% Evap., Deg F (Deg C) Min. (1)	50% Evap, Deg F (Deg C) Max.	90% Evap, Deg F (Deg C) Max.	**End Point, Deg F (Deg C) Max.**	Distillate Residue, Vol % Max.
338/337	**116 (47)****	**1250**	**158 (70)**	**150 (66)****	**250 (121)**	**374 (190)**	**430 (221)**	**2**
328/327	**116 (47)**	**1250**	**158 (70)**	**150 (66)**	**250 (121)**	**374 (190)**	**430 (221)**	**2**
308/307	**116 (47)**	**1250**	**158 (70)**	**150 (66)**	**250 (121)**	**374 (190)**	**430 (221)**	**2**
378/377	**116 (47)**	**1230**	**140 (60)**	**150 (66)**	**240 (116)**	**365 (185)**	**430 (221)**	**2**
358/357	**107 (42)**	**1220**	**131 (55)**	**150 (66)**	**235 (113)**	**365 (185)**	**430 (221)**	**2**
318/317	**102 (39)**	**1200**	**122 (50)**	**150 (66)**	**230 (110)**	**365 (185)**	**430 (221)**	**2**

**For Grades 337 and 338, noted E10 limits may be waived if following Neat results are achieved: Distillation T50 minimum = 170ºF; TV/L minimum = 124ºF,

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR FUNGIBLE CONVENTIONAL GASOLINE BLENDSTOCK
REGULAR CBOB GRADES 308, 318, 328, 338, 358, 378
PREMIUM CBOB GRADES 307, 317, 327, 337, 357, 377

NOTES:

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline. Approved corrosion inhibitors, gum inhibitors and metal deactivators are listed in Table 1.
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 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. Buckeye will accept test method results as listed in ASTM D4814 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
8. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172 ~~-2001~~ (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
9. Not all Grade Codes (and RVPs) are available on all pipeline systems.
10. Computer and Linear methods may be used to determine TV/L value. D5188 will be the referee method.
11. Beginning Sept 16 (Non-VOC season), low RVP grades may be comingled with corresponding next higher RVP grade. Buckeye reserves the right to regrade to higher RVP during seasonal RVP limit increases, provided destination RVP compliance is maintained at time of delivery.
12. This gasoline is for blending with between 9 and 10 vol % ethanol. The use of this gasoline to manufacture a gasoline-ethanol blend containing anything other than between 9 and 10 volume percent ethanol may cause a summertime RVP violation. Base gasoline - Not for sale to the ultimate consumer. Non-additized detergent gasoline.
13. When blended with 10% denatured ethanol, grades 307, 317, 327, 337, 357 and 377 are 93 Octane. These grades are 90 Octane minimum without 10% denatured ethanol and may not be considered premium in all areas as such.
14. Results may be reported “neat” (prior to blending with 10% ethanol), or with 10% ethanol. Same limit applies to either.
15. Heavy Metals, including lead, are not allowed to be present.

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR FUNGIBLE REFORMULATED GASOLINE BLENDSTOCK (RBOB)
FOR BLENDING WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806
REGULAR RBOB GRADES 532, 572, 582, 542
PREMIUM RBOB GRADES 535, 575, 585, 545

SPECIFICATIONS FOR RBOB GASOLINE PRIOR TO ETHANOL ADDITION

PRODUCT PROPERTY	ASTM TEST METHODS	TEST RESULTS MINIMUM	TEST RESULTS MAXIMUM	NOTE
Color			Undyed	
Gravity, API @ 60°F	D4052	Report		12
Haze Rating @ 77°F (Procedure 2)	D4176		2	
Oxygen Content, weight %	D5599		0.05	2,4
Oxidation Stability, minutes	D525	240		
NACE	TM0172-~~2001~~	B+		1,8
Sulfur, ppm	D2622		80	
Solvent washed Gum, mg/100ml	D381		4	

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

Corrosion (Copper), 3 hrs. @ 122°F	D130		1	1,13
Corrosion (Silver Strip) 3 hrs. @ 122°F	D7671		1	1,13
Benzene, vol. %	D3606		3.8	13
Doctor Test	D4952		Negative	3,13
Or Mercaptan Sulfur, wt. %	D3227		0.002	13
~~Lead Content, gms/gal~~	~~D3237, D5059~~		~~0.01~~	
Phosphorous, gms/gal	D3231		0.004	13
~~Solvent washed Gum, mg/100ml~~	~~D381~~		~~4~~	
Octane Rating with 10% Denatured Fuel Ethanol				5,6
Regular Grades (532, 572, 582, 542)				
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	82.0		
Index, (R+M)/2		87.0		
Premium Grades (535, 575, 585, 545)				13
Research Number	D2699, D2885	Report		
Motor Number	D2700, D2885	Report		
Index, (R+M)/2		93.0		
RVP, psi with 10% Denatured Fuel Ethanol	D5191	Refer to Table RB-1		9,11,12
Distillation	D86	Refer to Table RB-1		
TV/L 20, Deg F	D5188	Refer to Table RB-1		10
Driveability Index	D4814	Refer to Table RB-1		

Table RB-1 – RVP, TV/L and Distillation Table (all limits with 10% Ethanol)

Grade Code	Max RVP, psi w/ E10	Min TV/L = 20, °F (°C) (with E10)	Driveability Index (DI) (°F Max)	Distillation °F (°C) D86*				
				10% Evap., Deg F (Deg C) Max.	50% Evap., Deg F (Deg C) Min.	50% Evap., Deg F (Deg C) Max.	90% Evap., Deg F (Deg C) Max.	End Point, Deg F (Deg C) Max.
532/535	7.40[A]	116 (47)	1250	158 (70)	150 (66)	250 (121)	374 (190)	430 (221)
572/575	12.5	116 (47)	1230	140 (60)	150 (66)	240 (116)	365 (185)	430 (221)
582/585	14.5 13.5 (E,I,L,P)**	107 (42)	1220	131 (55)	150 (66)	235 (113)	365 (185)	430 (221)
542/545	15.5 15.0 (E,I,L,P)**	102 (39)	1200	122 (50)	150 (66)	230 (110)	365 (185)	430 (221)

***** *Maximum Distillation residue is 2% Vol for all grades (D86).*

****** ***Eastern Products (E), Long Island (I), Paulsboro (P) and Laurel (L)***: After E10 Blending RVP limit for 13.5 months is 13.5 psi; RVP limit for 15.0 months is 15.0 psi. ***For all other product systems***, E10 RVP limit is 14.5 psi and 15.5 psi. See RVP Calendars in Section 6.8 for RVP stepdown dates/cycles for each system.

[A] Max RVP of 7.2 psi (with 10% ethanol) for batches receipted into Buckeye during March and April

BUCKEYE PARTNERS, L.P.
SPECIFICATIONS FOR FUNGIBLE REFORMULATED GASOLINE BLENDSTOCK (RBOB) FOR BLENDING WITH 10% DENATURED FUEL ETHANOL AS DEFINED IN ASTM D4806
REGULAR RBOB GRADES 532, 572, 582, 542
PREMIUM RBOB GRADES 535, 575, 585, 545

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.

NOTES:

1. No additives or corrosion inhibitors containing phosphorus may be used in this gasoline. Approved corrosion inhibitors, gum inhibitors and metal deactivators are listed in Table 1.
2. Before blending with denatured ethanol, this product may not contain oxygenates, such as ethers or alcohols. Refer to test methods published in 40 CFR Part 1090. ~~Oxygen content must meet a minimum of 1.7 wt. % and a maximum of 4.0 wt. % after blending with Denatured Fuel Ethanol~~. The use of non-hydrocarbon blending components is prohibited. The di minimis limit of MTBE, ETBE, and TAME allowed is 0.3 vol. % maximum at origin.
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. Buckeye will accept test method results as listed in ASTM D4814 (most recent version). Test methods listed in this specification are considered the referee methods by Buckeye.
8. All products (except aviation grades) must meet a minimum level of corrosion protection, indicated by a minimum rating of B+ as determined by NACE Standard Test Method TM0172 ~~2001~~ (Determining Corrosive Properties of Cargoes in Petroleum Product Pipelines).
9. Not all Grade Codes (and RVPs) are available on all pipeline systems.
10. Computer and Linear methods may be used to determine TV/L value. D5188 will be the referee method.
11. Beginning Sept 16 (Non-VOC season), low RVP grades may be comingled with corresponding next higher RVP grade. Buckeye reserves the right to regrade to higher RVP during seasonal RVP limit increases, provided destination RVP compliance is maintained at time of delivery.
12. This gasoline is for blending with between 9 and 10 vol % ethanol. The use of this gasoline to manufacture a gasoline-ethanol blend containing anything other than between 9 and 10 volume percent ethanol may cause a summertime RVP violation. Base gasoline - Not for sale to the ultimate consumer. Non-additized detergent gasoline.
13. Results may be reported “neat” (prior to blending with 10% ethanol), or with 10% ethanol. Same limit applies to either.
14. Heavy Metals, including lead, are not allowed to be present.