Effective Date: 11/1/2023

Phillips 66 Pipeline LLC

Borger to Denver PR Pipeline
Product Specifications

Current Publication Date: 9/21/2023

Previous Publication Date: 9/23/2022

Revision Notes:

Added RFG Specifications for all grades.

Revised gasoline volatility tables to reflect Magellan Pipeline requirements.

Published 9/21/2023

Effective Date: 11/1/2023

Phillips 66 Pipeline LLC

Borger to Denver PR Pipeline
Product Specifications

Product Index

Product Name	Destination(s)	Trac66 Product Code(s)
Gasoline, Regular RBOB, 85 octane after 10% Ethanol (80.5 Neat)	PSX Denver, CO Terminal	R44 (7.4#), R39 (>7.4#)
Gasoline, Premium RBOB, 91 Octane after 10% Ethanol (88.5 Neat)	PSX Denver, CO Terminal	Q11 (7.4#), Q09 (>7.4#)
Volatility Schedule, RBOB, All Grades	PSX Denver, CO Terminal	Various

Published 9/21/2023

Effective Date: 11/1/2023

Trac66 Code(s):
R44 (7.4#), R39 (>7.4#)

Phillips 66 Pipeline LLC

Destinations:
PSX Denver, CO Terminal

Borger to Denver PR Pipeline
Product Specifications

Gasoline, Regular RBOB, 85 octane after 10% Ethanol (80.5 Neat)

Property	Test Method	Units	Min	Max	Specific	Note#
Additives	General Note					1
API Gravity (60 Deg F)	D1298, D4052	API	Report			
Appearance	Visual		Clear & Br			2
Basicity	D1093 modified- see note		Pass			3
Benzene	D3606	Vol%		4.0	E10	
Color, Visual	Visual		Undyed			
Corrosion, Copper Strip	D130 3 Hr @ 122 F	Rating		1		
Corrosion, NACE	NACE TM0172	Rating	B+			
Corrosion, Silver Strip	D7667, D7671	Rating		1		
E10 Blends	General Note				E10	4
Gum- Solvent Washed	D381	mg/100ml		4.0		
Gum- Unwashed	D381	mg/100ml		10.0		5
Haze	D4176 Procedure 2	Rating		2		6
Lead (Pb)	D3237, D5059	gPb/gal		0.01		
Mercaptan Sulfur	D3227	Wt%		0.002		7
Mercaptan Sulfur	D4952	Rating	sweet			
Octane, (R+M)/2	D2699 & 2700		80.5			
Octane, (R+M)/2	D2699 & 2700		85.0		E10	
Octane, Motor	D2700		Report			
Octane, Motor	D2700		80.0		E10	
Octane, Research	D2699		Report			
Octane, Research	D2699		Report		E10	
Odor	Non-offensive odor		Pass			8
Oxidation Stability	D525	minutes	240			
Oxygenates	D4815, D5599	Wt%		.05		9
Phosphorus	D3231	g/gal		0.003		
Product Description	See Note					10
Product Designation	See Note					11
Referee Methods	See Note					12
Sulfur	D2622, D5453, D7039	ppm		80		
Sulfur	D2622, D5453, D7039	ppm		Report	E10	
Volatility & Distillation	D4814		see Table			

Borger to Denver PR Pipeline
Product Specifications

Gasoline, Regular RBOB, 85 octane after 10% Ethanol (80.5 Neat)

Notes:

1. All additives and their concentrations must be previously approved by the pipeline Regional Fuel Quality Director and must be clearly indicated on the Certificate of Analysis. No intentional addition of MMT, phosphorus, lead, or additives containing other heavy metals is allowed.

2. This product must be clear and bright and visually free from undissolved water, sediment, and particulates.

3. ASTM D1093 should be performed to test for basicity according to the instructions in section 9.3 and 9.4 of the ASTM method using a phenolphthalein indicator solution, except as noted below. Combine 50 ml of the sample, 15 ml of water, and 3 drops of phenolphthalein indicator solution in a clean centrifuge tube, shake vigorously for 30 seconds, let stand for 3 minutes and observe against a white background (the centrifugation step in the ASTM method is not required). See the method for additional details. If a slightly pink to red color is observed in the water phase, the sample shows alkalinity and fails the test. The sample tested should be a lower sample as described in ASTM D4057, "...a spot sample of liquid from the middle of the lower one-third of the tank's content..."

4. Properties to be tested on the 10 volume percent ethanol hand blend have “E10” listed in the specific column.

5. If the initial unwashed gum value is greater than or equal to 4.0 mg/100ml, then a solvent-washed gum test does not need to be run on the sample.

6. Compliance with ASTM D4176 will be determined using Procedure 2 at the following temperatures, adjusted seasonally:

February 16 – September 30	55 °F max
October 1– February 15	45 °F max

7. The Mercaptan Sulfur determination may be waived if the fuel is considered sweet by the Doctor Test described in ASTM D 4952.

8. Any gasoline exhibiting an offensive odor and/or containing more than 0.30 wt % dicyclopentadiene will not be accepted for shipment.

9. These fuels may not contain oxygenates, such as ethers and alcohols. The use of non-hydrocarbon blending components in these grades is prohibited.

10. This fuel is a Reformulated gasoline Blendstock for Oxygenate Blending. Upon the terminal addition of 10 vol% of fuel grade ethanol, this fuel is intended to meet or exceed the requirements of ASTM D4814 (Unleaded Gasoline). This product does not meet EPA additive addition requirements for finished gasoline. A detergent must be added at the terminal to meet finished gasoline requirements prior to distribution.

11. In accordance with EPA 40 CFR 1090, all gasoline shall be designated as E10 for oxygenate blending at origin. Any neat (no ethanol) sales need to be accounted for at downstream terminals and the provisions for Downstream BOB recertification in 40 CFR 1090.740 shall be followed to account for sulfur and benzene deficits resulting from the downstream BOB recertification.

12. Referee Methods for Gasoline are as follows:
Oxygenates, ASTM D5599; Sulfur, ASTM D2622; Vapor Pressure, ASTM D5191; V/L, ASTM D5188.

Effective Date: 11/1/2023

Trac66 Code(s):
Q11 (7.4#), Q09 (>7.4#)

Phillips 66 Pipeline LLC

Destinations:
PSX Denver, CO Terminal

Borger to Denver PR Pipeline
Product Specifications

Gasoline, Premium RBOB, 91 Octane after 10% Ethanol (88.5 Neat)

Property	Test Method	Units	Min	Max	Specific	Note#
Additives	General Note					1
API Gravity (60 Deg F)	D1298, D4052	API	Report			
Appearance	Visual		Clear & Br			2
Basicity	D1093 modified- see note		Pass			3
Benzene	D3606	Vol%		4.0	E10	
Color, Visual	Visual		Undyed			
Corrosion, Copper Strip	D130 3 Hr @ 122 F	Rating		1		
Corrosion, NACE	NACE TM0172	Rating	B+			
Corrosion, Silver Strip	D7667, D7671	Rating		1		
E10 Blends	General Note				E10	4
Gum- Solvent Washed	D381	mg/100ml		4.0		
Gum- Unwashed	D381	mg/100ml		10.0		5
Haze	D4176 Procedure 2	Rating		2		6
Lead (Pb)	D3237, D5059	gPb/gal		0.01		
Mercaptan Sulfur	D3227	Wt%		0.002		7
Mercaptan Sulfur	D4952	Rating	sweet			
Octane, (R+M)/2	D2699 & 2700		88.5			
Octane, (R+M)/2	D2699 & 2700		91.0		E10	
Octane, Motor	D2700		Report			
Octane, Motor	D2700		82.0		E10	
Octane, Research	D2699		Report			
Octane, Research	D2699		Report		E10	
Odor	Non-offensive odor		Pass			8
Oxidation Stability	D525	minutes	240			
Oxygenates	D4815, D5599	Wt%		.05		9
Phosphorus	D3231	g/gal		0.003		
Product Description	See Note					10
Product Designation	See Note					11
Referee Methods	See Note					12
Sulfur	D2622, D5453, D7039	ppm		80		
Sulfur	D2622, D5453, D7039	ppm		Report	E10	
Volatility & Distillation	D4814		see Table			

Borger to Denver PR Pipeline
Product Specifications

Gasoline, Premium RBOB, 91 Octane after 10% Ethanol (88.5 Neat)

Notes:

1. All additives and their concentrations must be previously approved by the pipeline Regional Fuel Quality Director and must be clearly indicated on the Certificate of Analysis. No intentional addition of MMT, phosphorus, lead, or additives containing other heavy metals is allowed.

2. This product must be clear and bright and visually free from undissolved water, sediment, and particulates.

3. ASTM D1093 should be performed to test for basicity according to the instructions in section 9.3 and 9.4 of the ASTM method using a phenolphthalein indicator solution, except as noted below. Combine 50 ml of the sample, 15 ml of water, and 3 drops of phenolphthalein indicator solution in a clean centrifuge tube, shake vigorously for 30 seconds, let stand for 3 minutes and observe against a white background (the centrifugation step in the ASTM method is not required). See the method for additional details. If a slightly pink to red color is observed in the water phase, the sample shows alkalinity and fails the test. The sample tested should be a lower sample as described in ASTM D4057, "...a spot sample of liquid from the middle of the lower one-third of the tank's content..."

4. Properties to be tested on the 10 volume percent ethanol hand blend have “E10” listed in the specific column.

5. If the initial unwashed gum value is greater than or equal to 4.0 mg/100ml, then a solvent-washed gum test does not need to be run on the sample.

6. Compliance with ASTM D4176 will be determined using Procedure 2 at the following temperatures, adjusted seasonally:

February 16 – September 30	55 °F max
October 1– February 15	45 °F max

7. The Mercaptan Sulfur determination may be waived if the fuel is considered sweet by the Doctor Test described in ASTM D 4952.

8. Any gasoline exhibiting an offensive odor and/or containing more than 0.30 wt % dicyclopentadiene will not be accepted for shipment.

9. These fuels may not contain oxygenates, such as ethers and alcohols. The use of non-hydrocarbon blending components in these grades is prohibited.

10. This fuel is a Reformulated gasoline Blendstock for Oxygenate Blending. Upon the terminal addition of 10 vol% of fuel grade ethanol, this fuel is intended to meet or exceed the requirements of ASTM D4814 (Unleaded Gasoline). This product does not meet EPA additive addition requirements for finished gasoline. A detergent must be added at the terminal to meet finished gasoline requirements prior to distribution.

11. In accordance with EPA 40 CFR 1090, all gasoline shall be designated as E10 for oxygenate blending at origin. Any neat (no ethanol) sales need to be accounted for at downstream terminals and the provisions for Downstream BOB recertification in 40 CFR 1090.740 shall be followed to account for sulfur and benzene deficits resulting from the downstream BOB recertification.

12. Referee Methods for Gasoline are as follows:
Oxygenates, ASTM D5599; Sulfur, ASTM D2622; Vapor Pressure, ASTM D5191; V/L, ASTM D5188.

Effective Date: 11/1/2023

Trac66 Code(s):
Various

Phillips 66 Pipeline LLC

Destinations:
PSX Denver, CO Terminal

Borger to Denver PR Pipeline
Product Specifications

Volatility Schedule, RBOB, All Grades

Month(s)	Class	Pipeline Grade(s)	Clear RVP max, psi	E10 RVP max, psi	E10 V/L Test Temp min, °F	Clear V/L Test Temp min, °F	Drive Index max	Distillation Requirements, °F						Dist Resid max, %
								10% max	E10 50% min	Clear 50% min	50% max	90% max	End Pt max	
Jan	E-5	R39, Q09	15.0*	16.0	105	108*	1200	122	150	170*	230	365	430	2
Feb	E-5	R39, Q09	15.0*	16.0	105	108*	1200	122	150	170*	230	365	430	2
Feb	D-4	R39, Q09	13.5*	14.5	116	122*	1220	131	150	170*	235	365	430	2
Mar	D-4	R39, Q09	13.5*	14.5	116	122*	1220	131	150	170*	235	365	430	2
Apr	C-3	R39, Q09	11.5*	12.5	116	122*	1230	140	150	170*	240	365	430	2
May	AA-2	R44, Q11	NA	7.4	122	133*	1250	158	150	170*	250	374	430	2
Jun	AA-2	R44, Q11	NA	7.4	122	133*	1250	158	150	170*	250	374	430	2
Jul	AA-2	R44, Q11	NA	7.4	122	133*	1250	158	150	170*	250	374	430	2
Aug	AA-2	R44, Q11	NA	7.4	122	133*	1250	158	150	170*	250	374	430	2
Sep 1 - 15	AA-2	R44, Q11	NA	7.4	122	133*	1250	158	150	170*	250	374	430	2
Sep 16 - 30	B-2	R39, Q09	10.0*	11.0	122	133*	1240	149	150	170*	245	374	430	2
Oct	C-3	R39, Q09	11.5*	12.5	116	122*	1230	140	150	170*	240	365	430	2
Nov	D-4	R39, Q09	13.5*	14.5	116	122*	1220	131	150	170*	235	365	430	2
Dec	E-5	R39, Q09	15.0*	16.0	105	108*	1200	122	150	170*	230	365	430	2

Volatility dates are approximate; consult the pipeline schedule for detailed requirements. During transition months, certain volatility classes may be required prior to the class being listed in this table in order to turn over downstream tanks. In this case, find the next associated volatility class in the table based on the lowest RVP class that the product meets and use the associated volatility properties (for example, a 7.4 lb RVP shipped in March would be an AA-2 class instead of a D-4 class).

Vapor pressure and T50 minimum limits marked with an * apply to the fuel without ethanol. Unmarked limits apply to the fuel with 10 vol% ethanol. V/L does not have to be run on both the neat and E10, as the neat specs are intended to ensure the E10 specs are met after the addition of ethanol.

Test Methods: (latest version unless otherwise indicated)
Distillation: ASTM D86, corrected to 760 mm Hg;
Driveability Index: ASTM D4814;
V/L: ASTM D5188, or the estimate method using Appendix X2 of ASTM D4814;
Vapor Pressure: ASTM D5191. For conventional gasoline that meets a summer RVP specification of 9.0 psi or less and which is intended for sale in the summer, EPA requires the use of the EPA equation and also requires that batch reporting of RVP be to 2 decimal places (example; 8.97 psi).