

Castilla blend

Crude oil

International trading

Description

Castilla blend is a heavy crude with an API of 18.8° and 1.97% S. The Blend is the result of mixing Castilla crude with other heavy crudes produced in the Llanos Orientales basin. Some diluents are added to the blend in order to transport it using the oil pipeline systems to the port of Coveñas.

Uses

Refining industry.

Logistics

FOB or DES according to Incoterms 2000 Edition.

Delivery

This crude is exported through the port of Coveñas on the Atlantic Coast of Colombia.

Specifications *(Continued)*



Castilla blend crude oil specifications

	CRUDE	NAPHTHA 1	NAPHTHA 2	NAPHTHA 3	NAPHTHA 4	KEROSE- NE	LIGHT DIESEL	HEAVY DIESEL	LIGHT DIST.	MEDIUM DIST.	HEAVY DIST.	ATMOSPHERIC RESIDUE	VACUUM BOTTOM
ANALYSIS	°C	15-60	60-107	107-152	152-199	199-249	249-315	315-371	371-427	427-482	482-530	371.1+	530+
	°F	59-140	140-225	225-305	305-390	390-480	480-600	600-700	700-800	800-900	900-986	700+	986+
API 15.6°C (60°F)	19.1	86.9	66.1	54.8	46.0	35.6	28.5	23.2	18.7	16.4	13.4	7.0	0.9
Density at 15.0°C (g/cc)	0.9390	0.6478	0.7158	0.7591	0.7970	0.8465	0.8837	0.9144	0.9414	0.9563	0.9757	1.0207	1.0677
Sulphur (% w)	1.811	<0.005	<0.005	0.008	0.052	0.199	0.601	1.107	1.547	1.716	2.095	2.627	3.57
Residual carbon micro (% w)	11.91								<0.10	<0.10	1.02	19.37	32.44
Acid number (mg KOH/g)	0.288		<0.100	<0.100	<0.100	<0.100	0.162	0.372				0.468	
Reid vapour pressure RVP (psi)	3.32	16.39	4.73	1.09	0.41								
Pour point (°C)	-24					<-60	-33	0	27	36	42	54	120
Viscosity gravity constant (VGC)	0.883												
Heptane Insoluble (% w)	10.50												
Factor K (UOP)	11.62	12.79	12.07	11.78	11.61	11.37	11.28	11.28	11.37	11.43	11.49	16.93	30.35
Temperature 1°C	40					40	40	40	40	80	80	80	120
Kinematic viscosity @ t1°C (cSt)	175.10					1.74	3.93	13.54	73.19	30.32	125.70	10465.00	634476.34
Temperature 2°C	50					50	50	50	50	100	100	100	140
Kinematic viscosity @ t2°C (cSt)	66.80					1.51	3.19	9.52	41.68	14.41	45.55	1848.00	65448.00
V50	28.70					4.81	11.97	19.60	26.51	29.15	34.13	43.74	54.46
Ash (% w)	0.060											0.100	
BSW (% v)	0.10												
Salt (lb/1,000 BLS)	1.23												
Vanadium (ppm)	280.65								<0.001	0.045	0.657	452.50	777.30
Nickel (ppm)	63.62								<0.001	0.013	0.186	113.40	194.00
Sodium (ppm)	2.92											6.60	18.31
Iron (ppm)	3.87											8.71	13.52
Copper (ppm)	0.02											0.04	0.08
Aluminum (ppm)	1.24											1.61	2.12
Magnesium (ppm)	0.33											0.46	0.61
Calcium (ppm)	4.46											6.85	13.89
Wax content (% w)	1.9											3.2	1.2
Flash point (°C)	-15.0				42.0	76.0	121.0	165.0					
Distillation in fraction		Simulated (°C)			D - 86 (°C)			D-1160 (°C)			Simulated (°C)		
I.B.P	25.0	-11.6	25.9	79.9	146.7	200.1	255.6	313.3	366.4	410.5	450.4	358.5	
5% Vol. a,	88.7	-0.9	56.5	98.3	155.1	208.0	264.3	326.7	388.6	421.0	482.1	387.4	
10% Vol. a,	118.7	22.7	60.7	102.4	156.7	211.0	267.9	329.0	392.0	427.4	487.6	406.9	
20% Vol. a,	216.5	26.5	69.0	109.7	159.6	214.8	270.8	330.5	394.8	433.2	494.4	442.4	
30% Vol. a,	299.4	31.6	79.4	117.5	161.9	217.0	273.0	331.8	397.0	438.9	499.4	483.8	

(Continued)

Castilla blend crude oil specifications

	CRUDE	NAPHTHA 1	NAPHTHA 2	NAPHTHA 3	NAPHTHA 4	KEROSE- NE	LIGHT DIESEL	HEAVY DIESEL	LIGHT DIST.	MEDIUM DIST.	HEAVY DIST.	ATMOSPHERIC RESIDUE	VACUUM BOTTOM
40% Vol. a,	360.1	34.2	87.5	120.3	164.2	219.3	275.1	333.6	400.1	443.6	504.2	530.8	
50% Vol. a,	421.3	36.2	90.8	126.5	166.7	221.9	277.6	335.4	403.8	449.0	507.8	586.3	
60% Vol. a,	483.2	56.5	93.8	127.6	169.2	224.5	280.1	337.4	408.8	454.8	515.6	645.8	
70% Vol. a,	560.8	59.8	98.4	133.5	171.8	227.6	283.4	339.6	416.1	463.6	519.6	696.7	
80% Vol. a,	-	62.5	102.2	138.2	175.4	231.1	287.3	343.0	425.4	472.7	529.9	-	
90% Vol. a,	-	68.7	103.6	145.7	180.9	236.1	292.7	347.4	438.7	487.1	543.8	-	
95% Vol. a,	-	71.9	106.9	152.1	186.6	240.3	296.3	351.4	453.9	499.5	558.2	-	
DFRT	560.8	87.9	166.9	180.4	195.2	243.7	302.6	353.7	463.4	514.8	564.9	719.5	
Residue	29.3				1.1	0.8	1.2	1.3	2.2	2.0	3.0	23.9	
Yield/Crude (% vol)		2.19	5.62	6.62	4.41	5.02	9.17	9.80	7.75	9.21	7.19	56.69	32.54
Yield/Crude (% w)		1.57	4.47	5.58	3.74	4.53	8.63	9.54	7.77	9.38	7.47	61.64	37.01
Motor octane number MON		N.E.S.	67.2	58.9	54.3								
Research octane number RON		77.9	68.5	56.7	50.8								
N2 basic (% w)							0.0026	0.0133	0.033	0.047	0.070	0.133	0.186
N2 total (% w)	0.3865							1.5050	0.0982	0.1647	0.2661	0.6089	0.8871
Refractive index @ t (20°C)									1.5023	1.5119	1.5249		
Refractive index @ t (70°C)													
Aniline point (°C)							57.5						
Naphthenes (% vol)		6.1	36.0	27.6	12.3								
Paraffins (% vol)		40.2	23.8	17.4	15.9								
Iso-Paraffins (% vol)		45.9	32.4	35.9	31.3								
Aromatics (% vol)		0.7	4.0	12.3	31.9								
Color at 0 hours					30	28	0.2	0.7					
Naphthalenes (% vol)				0.007	0.11	3.18							
Freezing point (°C)				<-70.0	<-70.0	-53.5							
Smoke point (mm)				27.2	19.4	15.7							
Cetane index					32.7	34.6	38.8	43.2					
Cloud point (°C)					<-60	<-60	-31	3					107.3
Softening point (°C)													0.0
Penetration 25°C (mm/10)													
Mercaptans sulphur (% w)		0.0004	0.0005	0.0003	<0.0003	0.0003	0.0008						
Density a 70°C (g/cc)									0.9033	0.9184	0.9380	0.9835	1.0324
Aromatic carbon type													
Monoaromatic (% w)	5.01			9.57	12.34	6.62	5.67	6.02	5.23	5.03	5.10	4.72	4.46
Diaromatic (% w)	3.25			0.16	0.39	4.39	5.84	4.46	4.27	3.96	3.75	3.54	3.24
Triaromatic (% w)	3.20			0.00	N.D	0.18	0.64	3.31	5.00	5.45	5.49	4.71	4.43

(Continued)

Castilla blend crude oil specifications

CRUDE	NAPHTHA 1	NAPHTHA 2	NAPHTHA 3	NAPHTHA 4	KEROSENE	LIGHT DIESEL	HEAVY DIESEL	LIGHT DIST.	MEDIUM DIST.	HEAVY DIST.	ATMOSPHERIC RESIDUE	VACUUM BOTTOM
Tetraaromatic (% w)			N.D	N.D	0.09	0.05	0.60	1.91	2.75	3.58	4.83	6.34
Pentaaromatic (% w)			N.D	N.D	N.D	0.03	N.D	0.37	0.63	1.08	2.91	4.06
Hexaaromatic (% w)			N.D	N.D	N.D	0.02	N.D	0.10	0.23	0.48	1.38	2.11
Hepta+aromatic (% w)			N.D	N.D	N.D	0.00	N.D	0.06	0.09	0.28	5.01	8.24
S.A.R.A. Analysis												
Saturated (% w)											18.3	5.1
Aromatics (% w)											44.6	41.1
Resines (% w)											19.9	27.3
Asphaltenes (% w)											17.2	26.5
Thermal stability a 180 Min. % reflectance					98	98	95					
Color at 12 hours					28	0.2	0.7					
Color at 24 hours					27	0.2	0.7					

DFrT: Distillation final registered temperature

N.E.S.: Not enough sample

N.D: Not detectable

Sample date: November 5th, 2008

Sampling point: Castilla Tank 12020, Vasconia Heavy Tank 507, Isla 6 Tank 506. Coveñas.

Castilla TK-12020 (76%v) + Vasconia Heavy (12%v) + Isla 6 (12%v)

Silab code: 100080739

Source: Instituto Colombiano del Petróleo, Colombia

The catalog of Ecopetrol aims to provide the user with general information related to the portfolio of crude and products marketed by Ecopetrol SA. The information provided is not an offer in the terms of the Colombian Commercial Laws. Its purpose is informational only. Ecopetrol SA is not responsible for the use or interpretation by third parties. By entering the catalog you fully and exclusively agree to the terms and conditions governing the website www.ecopetrol.com.co. Consequently, the user must carefully read the Terms and Conditions on each of the occasions when it intends to access the catalog. The data and information obtained in the catalog may be amended in whole or in part by Ecopetrol SA, at any time and without notice to users. Because the most available technical means do not guarantee the absolute absence of meddling by the action of third parties on the information published on Internet sites, Ecopetrol does not guarantee the accuracy and / or completeness of all or part of the information contained in the catalog, nor its updating, nor that such information has been altered or modified in whole or in part after having been put, nor on any other aspect or characteristic of the information provided through the site or through the links eventually included in the same. Ecopetrol does not control or guarantee the absence of viruses or other elements in the contents that may cause alterations in your computer system (software and hardware) or electronic documents files stored in their computer system. Ecopetrol excludes any liability for damages of any kind that may be due to the presence of virus or the presence of other elements in the contents that may cause alterations in the computer system, electronic documents or user files.