Castilla blend

Crude oil
International trading

Description

Castilla blend is a heavy crude with an API of 18.8º 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 a 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								0.01	0.02	0.07	16.93	30.35
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		
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)

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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								0.0982	0.1647	0.2661	0.6089	0.8871
Refractive index @ t (20°C)								1.5050					
Refractive index @ t (70°C)									1.5023	1.5119	1.5249		
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					
Softening point (°C)													107.3
Penetration 25°C (mm/10)													0.0
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)

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Tetraaromatic (% w)	3.09			N.D	N.D	0.09	0.05	0.60	1.91	2.75	3.58	4.83	6.34
Pentaaromatic (% w)	1.84			N.D	N.D	N.D	0.03	N.D	0.37	0.63	1.08	2.91	4.06
Hexaaromatic (% w)	0.86			N.D	N.D	N.D	0.02	N.D	0.10	0.23	0.48	1.38	2.11
Hepta+aromatic (% w)	3.05			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)	25.1										32.0	18.3	5.1
Aromatics (% w)	33.9										60.5	44.6	41.1
Resines (% w)	12.8										7.1	19.9	27.3
Asphaltenes (% w)	10.1										0.4	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