

PERU / PIRANA



**PIRANA BLEND**

The Pirana Blend is a heavy medium sour crude oil resulting from the blending of 15% of diluent (naphtha) and 85% of the raw Pirana crude oil. Diluent is brought to the oil fields by barges after being stored in Perenco FSU El Manati. The blend is then exported segregated to Bayovar by barges and pipeline, but also from the FSU El Manati as Naphtha barges do not come back empty.

**COMMERCIAL**

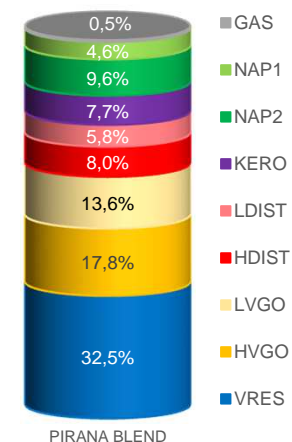
Volumes Around 1.5 million barrels per year  
Marketing Marketed by Perenco via SPOT tenders

**LIFTINGS**

Country PERU  
Terminals Bayovar (PetroPeru) / El Manati (Perenco)  
Location Bayovar / Boca del Napo river  
Loading Restriction Max 250k DWT / Max 15k DWT  
Loading Rate 85,000 bbl/hour  
Cargo Size 440,000 bbl at Bayovar (1<sup>st</sup> or 2<sup>nd</sup> port) / 40,000 to 100,000 bbl at El Manati  
Note Draft is restricted to 27 m / variable

**CRUDE OIL CHARACTERISTICS**

General Pirana Blend is a heavy to extra heavy naphthenic crude, high in sulphur but relatively low in acidity. The crude is blended with 15% naphtha.  
Naphtha 14 vol% naphtha  
Kerosene 8 vol% kerosene cut, low aniline point, relative high sulphur content  
Gasoil 14 vol% gasoil, suitable feedstock for marine fuel, excellent pour point  
VGO 31 vol% VGO either to be used for hydrocracking and/or catalytic cracking  
Residue 33 vol% residue, very suitable for production of bitumen and/or delayed coking



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Country	Assay Year	Load Point	API	Sulphur WT%	N ppm	TAN mgKOH/g	Pour Point °C	Visc. @ 40°C cST	V ppm	Ni ppm	RVP kPa
Peru	2019	Bayovar & Boca del Napo	21.5	1.720	2,970	0.28	-6	225.1	265	75	19.4

Property	Unit	NAP1	NAP2	KERO	LDIST	HDIST	LVGO	HVGO	VRES
IBP - EBP	°C	15 - 85	85 - 175	175 - 250	250 - 300	300 - 360	360 - 450	450 - 565	565 - EBP
Cut Yield	LV%	4.60	9.59	7.68	5.75	7.98	13.64	17.78	32.49
Cut Yield	WT%	3.34	7.68	6.67	5.29	7.61	13.51	18.13	37.48
Density @ 15°C	kg/l	0.670	0.739	0.801	0.849	0.879	0.913	0.941	1.064
K-Factor	--	12.5	12.1	11.9	11.7	11.6	11.6	11.8	11.6
Sulphur	WT%	0.000	0.008	0.113	0.703	1.213	1.475	1.728	2.743
Mercaptan Sulphur	ppm	0.3	3.7	2.0	4.0	7.4	8.5	5.1	0.1
Nitrogen	ppm	0	0	0	12	111	551	1,463	6,362
Basic Nitrogen	ppm	0	0	5	22	60	170	414	1,745
TAN	mgKOH/g	0.32	0.31	0.31	0.30	0.30	0.29	0.28	0.27
Viscosity @ 20°C	cSt			1.838					
Viscosity @ 40°C	cSt			1.374	2.682	5.77	21.91	203	
RON (Clear)	--	65.0	43.6	11.2					
MON (Clear)	--	64.0	42.7	10.8					
Paraffins (Total)	LV%	86.2	63.9	58.6					
iso-Paraffins	LV%	59.1	42.7	46.3					
n-Paraffins	LV%	27.0	21.3	12.3					
Naphthenes	LV%	10.7	28.8	31.0					
Aromatics	LV%	3.1	7.3	10.4					
N + 2A	LV%	16.9	43.4	51.8					
Pour Point	°C			-62	-36	-20	14	40	131
Cloud Point	°C			-57	-33	-15	17	44	
Freeze Point	°C			-53	-30	-12	21	49	137
Smoke Point	mm		48.4	26.1	19.3				
Cetane Index	--			51.1	50.0	53.1			
Naphthalenes	WT%			1.0	3.7				
Aniline Point	°C			70	71	75	79	86	
Hydrogen	WT%	16.0	14.8	13.9	13.2	12.8	12.3	12.1	10.1
Wax	WT%				0.54		0.76	0.91	1.32
Asphaltenes	WT%								29
MCRT	WT%						0.01	1.13	35.35
Vanadium	ppm							0.00	685
Nickel	ppm							0.00	199
Iron	ppm							0.00	26