

Oguendjo Blend Crude Oil (35.63 API, 0.749 Sul WT%)

Crude Name:	Oguendjo Blend Crude Oil	API Gravity	API	35.63	Component	Wt %	Vol %
Crude ID:	OguendjoBlend2019	Density @15 deg C	kg/l	0.8462	C2 Minus	0.008	0.019
Country:	Gabon	Sulfur	WT%	0.749	C3	0.392	0.654
Region:	Africa	Reid Vapor Pressure	kPa	51.99	IC4	0.613	0.922
State:	--	Nitrogen (Total)	ppm	1100	NC4	1.232	1.784
Assay Year:	2019	Pour Point	deg C	9	IC5	1.419	1.924
Assay Library:	TULLOW	Acidity (TAN)	mgKOH/g	0.57	NC5	1.112	1.491
Assay Source:	Glencore/Perenco	Vanadium	ppm	12	CycP	0.124	0.14
Sulfur Type:	Medium	Nickel	ppm	22	IC6	1.649	2.109
Crude Type:	Light	Viscosity @104 F (40 C)	cSt	10	NC6	0.89	1.135
Chemical Class:	Paraffinic	Viscosity @122 F (50 C)	cSt	9.7	Benzene	0.038	0.036

Property	Unit	WC	GAS	NAP1	NAP2	KERO	LDIST	HDIST	LVGO
Cut IBP Temp	deg C	--	IBP	15	85	175	250	300	360
Cut EBP Temp	deg C	--	15	85	175	250	300	360	450
Cut Yield (Vol)	LV%	100	4.04	8.14	16.2	12.64	9.24	10.04	11.12
Cut Yield (Wgt)	WT%	100	2.84	6.45	14.48	12.12	9.22	10.27	11.78
API Gravity	API	35.63	107.19	80.3	56.24	43.51	36.67	32.57	26.93
Specific Gravity (@60/60 F)	--	0.8466	0.5928	0.6681	0.7537	0.8085	0.8414	0.8624	0.8932
Density @15 deg C	kg/l	0.8462	0.5928	0.668	0.7535	0.8081	0.841	0.862	0.8927
K-Factor (Watson)	--	12.24 C	13.23	12.54	11.9	11.79	11.78	11.84	11.87
Molecular Weight	--	202 C	57	79	116	167	215	265	347
Hydrogen	WT%	13.2	17.4	16	14.5	13.8	13.3	13.1	12.7
Sulfur	WT%	0.749	0.006	0.005	0.027	0.995	0.316	0.489	0.708
Mercaptan Sulfur	ppm	23 C	0	14	74	72	20	7	0
Nitrogen (Total)	ppm	1100	0	0	0	4.3	25.7	130.4	429.9
Basic Nitrogen	ppm	332	0	0	3.1	35.3	82.6	134.7	213.1
Research Octane (clear)	--	--	97.8	69.5	50.4	26	11	--	--
Motor Octane (clear)	--	--	92.5	68	50.6	27.8	12.9	--	--
Flash Point	deg C	--	--	--	4	66	105	127	149
Reid Vapor Pressure	kPa	51.99	550.54	73.48	4.85	0.14	0.14	--	--
Paraffins (Total) Vol	LV%	--	100	84	59.9	56.2	50.1	47.7	42.1
iso-Paraffins Vol	LV%	--	42.95	49.26	41.47	45.5	50.08	--	--
n-Paraffins Vol	LV%	--	57.03	34.73	18.47	10.68	0.01	--	--
Naphthenes Vol	LV%	--	0	15.5	27	1.9	1.1	0	0

Property	Unit	WC	GAS	NAP1	NAP2	KERO	LDIST	HDIST	LVGO
Aromatics Vol	LV%	--	0	0.5	13	41.9	48.8	52.3	57.9
N + 2A	LV%	--	0.02	16.54	53.09	85.72	98.7	104.63	115.7
Freeze Point	deg C	--	-123	-102	-76	-46	-13	11	33
Cloud Point	deg C	--	-128	-107	-80	-48	-18	6	28
Pour Point	deg C	9	-128	-107	-81	-51	-18	5	27
Naphthalenes	LV%	--	0	0	0	1.8	6.7	11.5	--
Smoke Point	mm	--	--	--	28.75	22.61	18	14.77	11.41
Aniline Point	deg C	76	27	40	53	62	69	77	86
Acidity (TAN)	mgKOH/g	0.57	0	0	0	0.05	0.16	0.39	0.62
Cetane Index (D976)	--	--	0	1.7	27.3	46.2	54	62.2	58.3
Cetane Index (D4737-A)	--	--	82.7	46.1	35.8	46.2	53.5	60.4	64.2
Cetane Index (D4737-B)	--	--	70.8	58.1	45.6	47.6	52.1	58.6	66.8
Refractive Index @ 20deg C	--	--	1.31552	1.37248	1.4215	1.44978	1.46898	1.47918	1.49416
Refractive Index @ 70deg C	--	--	1.29066	1.34845	1.39856	1.42827	1.44811	1.46164	1.47595
Viscosity @ 68 F (20 C)	cSt	10.6	0.3	0.4	0.8	1.9	4.3	10	45.2
Viscosity @104 F (40 C)	cSt	10	0.3	0.4	0.6	1.4	3	6.7	22.9
Viscosity @122 F (50 C)	cSt	9.7	0.3	0.3	0.6	1.2	2.5	5.1	16
Viscosity @212 F (100 C)	cSt	8.6 C	0.3	0.3	0.4	0.7	1.2	2	4.2
Viscosity @275 F (135 C)	cSt	8 C	0.3	0.3	0.3	0.3	0.6	0.9	2.1
MCRT Carbon	WT%	3.2	0	0	0	0	0	0	0.01
Vanadium	ppm	12	0	0	0	0	0	0	0
Nickel	ppm	22	0	0	0	0	0	0	0
Vanadium + Nickel Total	ppm	34	0	0	0	0	0	0	0
Iron	ppm	9	0	0	0	0	0	0	0
Wax	WT%	6.5	0	0	0	0	0.23	10.23	15.21
Asphaltenes	WT%	0.89	0	0	0	0	0	0	0

Property	Unit	ARES	HVGO	VRES
Cut IBP Temp	deg C	360	450	565
Cut EBP Temp	deg C	EBP	565	EBP
Cut Yield (Vol)	LV%	39.71	14.67	13.92
Cut Yield (Wgt)	WT%	44.63	16.06	16.78
API Gravity	API	17.84	21.76	7.71
Specific Gravity (@60/60 F)	--	0.9475	0.9233	1.0164
Density @15 deg C	kg/l	0.9469	0.9227	1.0158
K-Factor (Watson)	--	11.89	11.99	11.74

Property	Unit	ARES	HVGO	VRES
Molecular Weight	--	520	494	864
Hydrogen	WT%	11.9	12.4	11
Sulfur	WT%	1.485	1.099	2.399
Mercaptan Sulfur	ppm	1	0	2
Nitrogen (Total)	ppm	2451.6	1242.6	5028
Basic Nitrogen	ppm	918.9	392.9	1917.8
Research Octane (clear)	--	--	--	--
Motor Octane (clear)	--	--	--	--
Flash Point	deg C	156	166	172
Reid Vapor Pressure	kPa	--	--	--
Paraffins (Total) Vol	LV%	35.7	38.2	26
iso-Paraffins Vol	LV%	--	--	--
n-Paraffins Vol	LV%	--	--	--
Naphthenes Vol	LV%	0	0	--
Aromatics Vol	LV%	64.3	61.8	--
N + 2A	LV%	128.61	123.7	--
Freeze Point	deg C	69	53	105
Cloud Point	deg C	64	48	100
Pour Point	deg C	63	47	99
Naphthalenes	LV%	--	--	--
Smoke Point	mm	1.05	8.79	0.4
Aniline Point	deg C	103	98	121
Acidity (TAN)	mgKOH/g	0.75	1.03	0.59
Cetane Index (D976)	--	30.4	36.2	1.9
Cetane Index (D4737-A)	--	--	--	--
Cetane Index (D4737-B)	--	--	--	--
Refractive Index @ 20deg C	--	1.5256	1.51124	1.56585
Refractive Index @ 70deg C	--	1.50424	1.49352	1.53814
Viscosity @ 68 F (20 C)	cSt	11885.5	882.1	2.51E+015
Viscosity @104 F (40 C)	cSt	8085.1	159.8	5.63E+033
Viscosity @122 F (50 C)	cSt	363	96.4	496518.7
Viscosity @212 F (100 C)	cSt	36.7	13.8	3381.2
Viscosity @275 F (135 C)	cSt	12.8	6.7	423.9
MCRT Carbon	WT%	7.23	0.65	18.61
Vanadium	ppm	27.96	0.72	73.66
Nickel	ppm	54.93	7.56	138.82

Property	Unit	ARES	HVGO	VRES
Vanadium + Nickel Total	ppm	82.89	8.28	212.49
Iron	ppm	27.01	0.04	71.79
Wax	WT%	12.68	14.23	9.43
Asphaltenes	WT%	1.76	0	4.67

C-Calculated Value

Haverly Systems, Inc. (www.haverly.com)

Crude Assay Data from H/COMET Database 8/27/2019 2:45:21 PM

