

Mnmn	See Foot-notes	Crude Name	Product Code	Country	Assay Date	Density	RVP	Sulfur	a)Pour Point	Carbon Residue	Viscosity (SSU)			b) H2S	Metals (ppm)				TAN E	SALT	Organic Chlorides (ppm)	
						(API@60)	(psia)	(%)	(degF)	(%)	@ 60 F	@ 80 F	@ 100 F	(ppm)	Vanadium		Nickel		(mg KOH/g)	(lb/MB)	Whole	Naphtha
															Whole	Pitch	Whole	Pitch				
<b>Sweet - Low Metals Group</b>																						
EF57	<input checked="" type="checkbox"/>	Eagle Ford API 57	82865	USA	02/26/2015	45.7	7.43	0.242	< -27.4	0.51	41.1	37.1	35.2	<1	2.4	28.6	0.6	7.2	<0.1	25.4	< 1	-
EFHI	<input checked="" type="checkbox"/>	Eagle Ford Crude (RVP 8.6 psia or higher)	00998	USA	12/30/2011	58.8	9.7	0.041	15.2	0.07	32.4	31.1	30.2	< 1	< 0.5	0.5	0.2	4.1	0.02	0	< 1	< 1
EFLO		Eagle Ford Crude (RVP less than 8.6 psia)	00997	USA	12/30/2011	47.7	6.5	.101	5.9	0.24	40.6	37.1	34.8	< 1	0.1	0.6	0.1	2.2	0.03	1	< 1	< 1
ESC	<input checked="" type="checkbox"/>	ESCRA VOS	82338	Nigeria	01/21/2011	33.4	3.23	0.172	10.4	1.27	52.9	46.6	41.2	< 1	0.6	6.6	4.7	51	0.6	13	< 1	< 1
FOR	<input checked="" type="checkbox"/>	FORCA DOS	82331	Nigeria	06/16/2011	30.1	3.97	0.172	<-27.4	0.88	63.9	51.6	45.9	< 1	0.4	5	2.7	37	0.45	21	< 1	< 1
General Crude		General Crude	GC	US	03/01/2013	39	4.86	0.428	< -27.4	1.69	45.6	41.1	37.9	<1	5.2	42	3	28	0.4	64.3	< 1	-
HLS		HEAVY LA SWEET	82720	USA	02/22/2013	33.4	3.02	0.416	< -27.4	2.86	68.97	80	48.2	< 1	3.6	26	5.6	38	0.25	74.5	< 1	< 1
LLS		LIGHT LOUISIANA SWEET	82722	USA	10/28/2015	37.4	5.33	0.392	< -27.4	1.47	50.2	44.1	40.2	<1	3.1	32.2	2.3	24	0.45	80.8	< 1	< 1
LMS		Light MISSISSIPPI SWEET	82723	USA	09/15/2015	42.1	3.8	0.37	< -27.4	1.54	41.1	37.5	35.2	<1	1.8	22	1.1	12	0.1	21.2	< 1	1.8
LVGO		LLS/VGO (83/17) BLEND	50457	USA	01/20/2012	38.2	4.03	0.159	-11.2	0.98	56.2	44.3	39.8	< 1	1.4	16.2	1.1	13.6	0.21	27	< 1	< 1
MLS		Memphis Light Sweet	82726	USA	11/17/2015	39.1	5.99	0.192	< -27.4	0.72	45	40.4	37.5	<1	1.2	13.8	0.6	8.6	0.25	36.9	< 1	< 1
NDS		North Dakota Sweet	82545	USA	08/08/2015	42	8.31	0.12	< -27.4	0.65	39	35.4	33.4	<1	0.5	8	0.4	7.4	< 0.1	13.1	< 1	< 1
SLS		SOUTH LOUISIANA SWEET	82586	USA	02/19/2013	36.6	3	0.206	10.4	1.23	52.1	45.5	-	<1	1.3	14	2	26	0.35	93.6	< 1	-
TCS		Tampa Common Stream	N/A	USA	08/04/2015	43.9	8.89	0.149	< -27.4	0.59	39	35	33.5	<1	1.8	23	0.2	4	< 0.1	27.5	< 1	< 1
WHSW		WEST HACKBERRY SWEET	82267	USA	07/26/2011	39.9	5.83	0.293	<-27.4	1.76	43.6	40.1	36.8	< 1	5.6	41	4.5	34	0.15	9	< 1	1.5
WTI		West Texas Intermediate	11111	USA	08/13/2015	41	6.06	0.165	< -27.4	0.77	42.2	38.7	36.1	<1	2.8	22	1.2	9.8	< 0.1	28.4	< 1	1.4
<b>Sweet - High Metals Group</b>																						
STB		SANTA BARBARA	82251	USA	08/08/2011	40.4	5.67	0.452	< -27.4	0.93	37	35.2	33.3	< 1	5.6	99	1.3	22	<0.05	9.2	< 1	< 1
<b>Intermediate Group</b>																						
BNL	<input checked="" type="checkbox"/>	BONNY LIGHT	82337	Nigeria	06/22/2011	33.9	4	0.529	-11.2	1.39	49	43.1	39.1	< 1	6.9	70	4.6	51	0.25	140	< 1	< 1
KISS	<input checked="" type="checkbox"/>	KISSANJE	83007	Angola	06/22/2011	31.3	5.45	0.543	-16.6	3.69	95.6	68.1	55.3	< 1	9	42	11	54	0.48	78	< 1	< 1
TH		THUNDER HORSE	83019	USA	07/11/2015	32.6	4	0.918	10.4	4.59	79.1	60.4	51.6	<1	14	72	13	64	0.1	54.2	< 1	< 1
<b>Sour Group</b>																						
ABL		ARABIAN LIGHT	82376	Saudi Arabia	11/09/2015	33.1	4.11	1.96	< -27.4	5.07	63.5	53.2	46.8	<1	11.2	54	3.4	16	< 0.1	4.3	< 1	< 1
AXL		ARABIAN EXTRA LIGHT	82375	Saudi Arabia	06/08/2011	39.7	5.39	1.07	< -27.4	1.82	42.6	38.9	36.1	< 1	3.2	25	1.4	12	<0.05	1.9	< 1	< 1
BS		BONITO SOUR	82743	USA	11/23/2015	34	3.34	1.58	-16.6	4.07	91.2	69.3	28.7	<1	27	97	9.8	34	0.8	28.5	< 1	< 1
EIC		EUGENE ISLAND	82725	USA	11/03/2015	32.7	5.27	1.18	< -27.4	3.06	82.2	62	49.5	<1	14.6	84	6.2	34	0.7	91.8	< 1	1.1
EMS		MISSISSIPPI SOUR	82520	USA	09/15/2015	36.2	2.8	1.98	< -27.4	4.38	51.1	44.7	40.6	<1	5.8	51	4.4	36	<0.1	3.2	< 1	1.3
EMX		EAST MS MIX	82521	USA	11/30/2014	36.1	2.81	1.91	< -27.4	4.22	52.9	45.6	41.1	<1	5.5	35	4.1	26	0.15	21.8	< 1	< 1
MARS		MARS BLEND	82745	USA	06/25/2015	30.4	3.44	1.73	-22	5.92	123.9	82.8	64.8	<1	55	152	21.8	59	0.2	16.6	< 1	< 1
PSD		POSEIDON	82749	USA	11/17/2015	30.2	5.99	1.72	< -27.4	5.67	114.8	82	37.5	<1	40	157	13	48.8	0.5	62.5	< 1	< 1
THB		Seg 17 Thunder Horse (30/70) Blend	84004	USA	12/31/2011	33.1	6.4	1.22	-24	5.1	69	56	49	< 1	15.6	70	10	43	0.08	3.5	< 1	< 1
<b>High Sulfur Sour Group</b>																						
ABM		ARABIAN MEDIUM	82377	Saudi Arabia	06/02/2011	30.9	3.09	2.54	-11.2	5.45	94.7	70.3	57.2	< 1	28	112	8.6	36	0.15	2.6	< 1	< 1
AMH		ALBIAN MUSKEY RIVER HEAVY	83997	Canada	06/09/2011	21.6	4.2	3.81	-49	----	1539.2	612.33	288.8	----	----	----	----	----	----	----	----	----
BAS		BASRA LIGHT	82383	Iraq	06/02/2011	30.1	5.5	2.9	<-27.4	5.99	101.4	73.1	58.9	< 1	40	159	10	40	0.2	88.2	< 1	< 1
DAL		DALIA	83783	Angola	02/09/2011	23.1	2.77	0.513	< -27.4	4.53	677	357	206	< 1	7.4	28	18	74	1.6	111	< 1	3.4
KUW		KUWAIT	82380	Kuwait	06/04/2011	30.1	4.48	2.8	-22	6.65	115.7	83.4	64.4	< 1	34	132	9.8	36	0.1	<1	< 1	< 1

HYDROCARBON	HYDROCARBON
AMENAM BLEND	Viscosity at 60F not reported - too close to pour point for accurate measurement
BAYOU CHOCTAW - SWEET	!! Due to Hydrogen Sulfide results- Take safety precautions !!
BONNY LIGHT	Must be pour point suppressed if moved through LOOP cavern
BRENT	Must be monitored for pour point depression.
CABINDA	Must be monitored for pour point depression. ! Viscosity at 60 and 80F not accurately measured - too close to pour point.
CPC BLEND	Due to RVP, must be shipped on a case by case basis and approved prior to each nomination.
CUSIANA	Must be monitored for pour point depression. . Note: Cusiana continues to have HIGH Metals. Cusiana will be moved as a Sweet/ High Metals batch unless metals return to previous low levels. Due to RVP, to move in summer months, must be shipped on a case by case basis and approved prior to each nomination.
EA CRUDE	Must be monitored for pour point depression.
Eagle Ford API 57	crude exceeds our RVP guidelines for the Summer months and each batch must be approved by Crude Oil Quality or the Manager of Oil Movements from May through September.
Eagle Ford Crude (RVP 8.6 psia or higher)	crude exceeds our RVP guidelines and each batch must be approved by Crude Oil Quality or the Manager of Oil Movements
ESCRAVOS	Must be monitored for pour point depression.
ES SIDER	!! Due to Hydrogen Sulfide results- Take safety precautions !!
FOINAVEN	Must be monitored for pour point depression.
FORCADOS	Must be pour point suppressed if moved through LOOP cavern
GALEOTA	Must be monitored for pour point depression.
HIBERNIA	Must be monitored for pour point depression.
HUNGO	Must be pour point suppressed if moved through LOOP cavern
KISSANJE	Must be pour point suppressed if moved through LOOP cavern
KITINA	Must be monitored for pour point depression.
QUA IBOE	Must be monitored for pour point depression.
NEMBA	Must be monitored for pour point depression.
N'KOSSA	Must be monitored for pour point depression.
OGUENDJO	Must be monitored for pour point depression.
OKONO	Must be monitored for pour point depression.
OSO CONDENSATE	Must be monitored for pour point depression. Due to RVP, must be shipped on a case by case basis and approved prior to each nomination.
PLUTONIO	Must be monitored for pour point depression.
PUROVSKIY	Due to RVP, must be shipped on a case by case basis and approved prior to each nomination.
RABI LIGHT	Must be monitored for pour point depression.
SAHARAN BLEND	Due to RVP, must be shipped on a case by case basis and approved prior to each nomination.
SCHIEHALLION	Must be monitored for pour point depression.
SOUTH LOUISIANA INTERMEDIATE	Put into Sour group due to Acid Number >1
TROLL EXPORT	Acid number on Troll Export continues to be higher than usual. Will continue to move with Sweet Low Metals group and will monitor.
VASCONIA	Must be monitored for pour point depression.
XIKOMBA	Must be monitored for pour point depression.
YOHO CRUDE	Must be monitored for pour point depression.

a) POUR POINT may have been depressed in the sample taken for this assay.

b) Due to loss of H2S in sampling and shipping, H2S is likely higher than stated in this assay. TAKE precautions with all crude oils - sour or sweet.

NOTES					
CRITERIA FOR GROUPING CRUDES ON CAPLINE				POUR POINT REQUIREMENTS	
Group	Criteria			Summer	Start on or after April 1, Clear of System by September 30 <= 55F
	Sulfur	Ni + V(pitch)	TAN	Winter	Start October 1 - March 31 <= 35F
	%w	ppm	mg KOH/g		
Sweet - Low Metals	< 0.5	<= 100	<= 1.0	<b>RVP LIMITATIONS</b>	
Sweet - High Metals	< 0.5	<= 250	<= 1.0		
Intermediate	0.5 - 1.0	<= 550	<= 1.0	Year-Round	RVP of <= 8.6 psi accepted year-round
Sour	>1.0 - 2.0	<= 1200	<= 1.5	Winter	Start on or after October 1, Clear of System by April 30 <= 9.6
High Sulfur Sour	> 2.0	<= 1200	<= 2.0		NOTE: RVP > 9.6 Subject to Management Approval