

DUC - SUMMARY OF MAJOR CUTS

	Whole Crude	Light Naphtha	Medium Naphtha	Heavy Naphtha	Kero	Atm Gas Oil	Light VGO	Heavy VGO	Vacuum Resid	Atm Resid
TBP Temp At Start, °C	Start	10	80	150	200	260	340	450	570	340
TBP Temp At End, °C	End	80	150	200	260	340	450	570	End	End
TBP Temp At Start, °F	Start	55	175	300	400	500	650	850	1050	650
TBP Temp At End, °F	End	175	300	400	500	650	850	1050	End	End
Yield at Start, vol%		3.6	10.4	24.7	34.8	45.3	60.4	74.0	85.8	60.4
Yield at End, vol%		10.4	24.7	34.8	45.3	60.4	74.0	85.8	100.0	100.0
Yield of Cut (wt% of Crude)		5.2	12.9	9.6	10.4	15.5	14.6	12.9	16.5	44.0
Yield of Cut (vol% of Crude)		6.8	14.3	10.1	10.5	15.1	13.7	11.7	14.2	39.6
Gravity, °API	34.8	82.9	53.5	43.7	36.5	30.1	24.0	20.2	11.6	18.3
Specific Gravity	0.8507	0.6601	0.7647	0.8077	0.8421	0.8758	0.9098	0.9328	0.9885	0.9449
Sulfur, wt%	0.29	0.00	0.02	0.04	0.08	0.17	0.40	0.57	0.69	0.56
Mercaptan Sulfur, ppm		3	4	4	3	3	2			
Nitrogen, ppm	1571	0	0	0	8	118	818	2664	6591	3527
Hydrogen, wt%		16.2	14.0	14.9	14.2	13.4	12.7	12.2		
Viscosity @ 40 °C (104 °F), cSt	5.01			0.993	1.86	4.97	30.8	231	1.64E+05	407
Viscosity @ 50 °C (122 °F), cSt	4.22			0.893	1.57	3.86	19.7	127	39000	212
Viscosity @ 100 °C (212 °F), cSt	2.20			0.592	0.840	1.55	4.35	17.7	572	25.1
Viscosity @ 135 °C (275 °F), cSt	1.60			0.481	0.620	1.01	2.26	7.72	119	10.3
Freeze Point, °C				-86.000	-56.000	-21.000	15.0	33.0		
Freeze Point, °F				-122	-68	-6	59	92		
Pour Point, °C	-51			-86	-60	-24	12	31	45	26
Pour Point, °F	-60			-123	-76	-11	54	87	113	79
Smoke Point, mm (ASTM)				22	17	14	12			
Aniline Point, °C				46	54	62	74	89		
Aniline Point, °F				114	129	144	166	193		
Total Acid Number, mg KOH/g	0.36		0.1	0.1	0.3	0.5	0.7	0.4		
Cetane Index, ASTM D976				26	39	44				
Diesel Index				50	47	43	40	39		
Characterization Factor (K Factor)	12.1	12.6	11.6	11.5	11.5	11.5	11.7	12.0	11.9	11.8
Research Octane Number, Clear		70.8	60.8	58.1						
Motor Octane Number, Clear		68.7	57.9							
Paraffins, vol%		84.9	42.4	32.5	29.7	25.7	16.8	6.3		
Naphthenes, vol%		15.1	40.7	41.0	40.2	36.0	39.0	46.2		
Aromatics, vol%		0.0	16.9	26.4	29.9	38.4	44.2	47.6		
Thiophenes, vol%										
Molecular Weight	210	97	111	137	172	217	308	473	850	471
Gross Heating Value, MM BTU/bbl	5.86	4.82	5.39	5.62	5.79	5.96	6.12	6.24	6.46	6.28
Gross Heating Value, kcal/kg	10920	11580	11210	11030	10900	10810	10680	10630	10370	10530
Gross Heating Value, MJ/kg	45.7	48.5	46.9	46.2	45.6	45.2	44.7	44.5	43.4	44.1
Heptane Asphaltenes, wt%		0.0							0.2	0.1
Micro Carbon Residue, wt%		1.7							10.2	3.8
Ramsbottom Carbon, wt%		1.6							9.7	3.6
Vanadium, ppm		5							28	10
Nickel, ppm		4							26	10
Iron, ppm										

DUC - DISTILLATION SUMMARY

	Whole Crude	Light Naphtha	Medium Naphtha	Heavy Naphtha	Kero	Atm Gas Oil	Light VGO	Heavy VGO	Vacuum Resid	Atm Resid
TBP Temp At Start, °C		10	80	150	200	260	340	450	570	340
TBP Temp At End, °C		80	150	200	260	340	450	570	End	End
TBP Temp At Start, °F		55	175	300	400	500	650	850	1050	650
TBP Temp At End, °F		175	300	400	500	650	850	1050	End	End
Yield at Start, vol%		3.6	10.4	24.7	34.8	45.3	60.4	74.0	85.8	60.4
Yield at End, vol%		10.4	24.7	34.8	45.3	60.4	74.0	85.8	100.0	100.0
Yield of Cut (wt% of Crude)		5.2	12.9	9.6	10.4	15.5	14.6	12.9	16.5	44.0
Yield of Cut (vol% of Crude)		6.8	14.3	10.1	10.5	15.1	13.7	11.7	14.2	39.6
TBP Distillation, vol%	°C Start	0	80	150	200	260	340	450	570	340
	°C 5%	22	81	149	207	263	348	459	573	356
	°C 10%	26	90	152	211	267	353	465	582	372
	°C 30%	34	99	162	222	283	373	487	622	440
	°C 50%	49	112	172	233	299	394	508	674	511
	°C 70%	64	126	186	244	314	419	530	733	594
	°C 90%	71	139	199	255	333	443	553	788	739
	°C 95%	72	143	202	258	338	449	559	823	827
	°C End	80	150	210	260	340	450	570	End	End
TBP Distillation, vol%	°F Start	40	175	300	400	500	650	850	1050	640
	°F 5%	71	177	301	405	506	658	859	1064	673
	°F 10%	79	194	305	411	513	667	869	1080	701
	°F 30%	94	210	323	431	541	703	908	1151	824
	°F 50%	121	234	342	452	570	742	947	1245	951
	°F 70%	148	259	367	472	598	787	986	1352	1101
	°F 90%	159	282	390	491	631	830	1027	1451	1363
	°F 95%	162	289	395	496	640	841	1039	1513	1520
	°F End	175	300	410	500	650	850	1050	End	End