

BRENT - 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%		3.4	11.3	27.1	37.1	47.1	61.8	78.3	89.8	61.8
Yield at End, vol%		11.3	27.1	37.1	47.1	61.8	78.3	89.8	100.0	100.0
Yield of Cut (wt% of Crude)		6.3	14.4	9.4	9.9	15.1	17.6	12.7	12.3	42.6
Yield of Cut (vol% of Crude)		8.0	15.8	10.0	10.0	14.8	16.5	11.5	10.2	38.2
Gravity, °API	38.5	83.2	54.4	48.2	40.9	35.1	27.9	22.1	10.3	21.1
Specific Gravity	0.8311	0.6591	0.7611	0.7874	0.8210	0.8494	0.8877	0.9212	0.9982	0.9273
Sulfur, wt%	0.43	0.00	0.00	0.01	0.04	0.25	0.57	0.82	1.44	0.90
Mercaptan Sulfur, ppm		3	5	4	4	3	3			
Nitrogen, ppm	1040			0	1	54	736	1910	5376	2423
Hydrogen, wt%	13.3	16.3	14.2	13.9	13.6	13.3	12.7	12.5	10.8	12.1
Viscosity @ 40 °C (104 °F), cSt	3.55			0.954	1.60	4.08	21.2	180	2.17E+05	189
Viscosity @ 50 °C (122 °F), cSt	2.94			0.853	1.37	3.24	14.6	102	51400	107
Viscosity @ 100 °C (212 °F), cSt	1.45		0.382	0.552	0.755	1.39	3.97	15.2	731	16.3
Viscosity @ 135 °C (275 °F), cSt	1.03			0.444	0.565	0.938	2.23	6.79	150	7.31
Freeze Point, °C			-100.000	-68.000	-42.000	-8.000	33.0	52.0		
Freeze Point, °F			-148	-90	-43	17	91	126		
Pour Point, °C	2		-114	-78	-49	-14	29	49	56	33
Pour Point, °F	35		-174	-109	-56	7	85	120	132	92
Smoke Point, mm (ASTM)				28	22	18	15	13		
Aniline Point, °C				53	61	71	83	93		
Aniline Point, °F				127	142	159	182	200		
Total Acid Number, mg KOH/g	0.05			0.0	0.0	0.0	0.0	0.1		
Cetane Index, ASTM D976				37	47	52				
Diesel Index				61	58	56	51	44		
Characterization Factor (K Factor)	12.1	12.8	11.7	11.8	11.8	11.9	12.0	12.1	11.8	11.9
Research Octane Number, Clear		65.2	56.8	43.3						
Motor Octane Number, Clear		63.8	54.7							
Paraffins, vol%		87.5	46.1	42.8	38.5	33.9	26.7	25.3		
Naphthenes, vol%		12.5	40.4	37.2	39.9	41.2	43.1	43.2		
Aromatics, vol%		0.0	13.5	19.9	21.5	24.9	30.2	31.6		
Thiophenes, vol%										
Molecular Weight	209	102	113	143	176	225	317	468	880	418
Gross Heating Value, MM BTU/bbl	5.76	4.82	5.37	5.52	5.70	5.85	6.03	6.18	6.47	6.20
Gross Heating Value, kcal/kg	10990	11580	11210	11140	11030	10940	10760	10660	10290	10620
Gross Heating Value, MJ/kg	46.0	48.5	46.9	46.6	46.2	45.8	45.0	44.6	43.1	44.5
Heptane Asphaltenes, wt%	0.4								3.1	0.9
Micro Carbon Residue, wt%	1.9								15.6	4.5
Ramsbottom Carbon, wt%	1.8								14.8	4.3
Vanadium, ppm	7								58	17
Nickel, ppm	1								11	3
Iron, ppm										

BRENT - 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%		3.4	11.3	27.1	37.1	47.1	61.8	78.3	89.8	61.8
Yield at End, vol%		11.3	27.1	37.1	47.1	61.8	78.3	89.8	100.0	100.0
Yield of Cut (wt% of Crude)		6.3	14.4	9.4	9.9	15.1	17.6	12.7	12.3	42.6
Yield of Cut (vol% of Crude)		8.0	15.8	10.0	10.0	14.8	16.5	11.5	10.2	38.2
TBP Distillation, vol%	°C Start	10	80	150	200	260	340	450	560	340
	°C 5%	25	81	151	207	264	349	459	571	356
	°C 10%	29	89	154	210	268	353	463	581	367
	°C 30%	36	99	164	221	283	374	482	624	417
	°C 50%	59	114	174	232	299	394	502	686	475
	°C 70%	66	130	186	243	316	417	524	743	549
	°C 90%	71	141	198	254	334	442	551	802	722
	°C 95%	72	148	202	257	339	448	558	839	826
	°C End	80	170	200	260	340	450	570	End	End
TBP Distillation, vol%	°F Start	50	175	300	400	500	650	850	1040	650
	°F 5%	77	177	304	405	507	660	858	1060	672
	°F 10%	84	192	309	410	514	668	866	1077	692
	°F 30%	97	211	327	430	542	705	900	1156	782
	°F 50%	138	238	346	450	570	742	935	1267	887
	°F 70%	150	266	367	470	600	783	975	1370	1021
	°F 90%	159	285	389	490	633	827	1023	1476	1331
	°F 95%	162	299	395	495	642	839	1036	1542	1519
	°F End	175	330	400	500	650	850	1050	End	End