TotalEnergies

Crude **CASCADE CHINOOK BLEND**

Country United States of America

TBP DISTILLATION

Density at 15°C, kg/m3	906.0
°API	24.6
Bbl/mt	6.952
Acidity, mg KOH/g	0.27
Sulphur, wt%	2.810
Hydrogen Sulphide, mg/kg	2
Mercaptan Sulphur, mg/kg	3
Viscosity, cSt at 10 °C	129.0
50 °C	26.9
Pour Point, °C	-24
Total Nitrogen, wt%	0.182
Wax, wt%	-
Wax Appearance Temperature, °C	-
RVP at 37.8 °C, kPa	31
Water, vol%	-
NaCl, mg/kg	-
Nickel, mg/kg	26.6
Vanadium, mg/kg	97.8
Iron, mg/kg	10.8
Mercury, µg/kg	9.3

Assay Date 13-Jan-13

Assay Quality Blend 40% Cascade 60% Chinook

	wt%	vol%
Ethane	0.01	0.03
Propane	0.17	0.31
Iso-Butane	0.09	0.14
n-Butane	0.44	0.67

°C	wt%	vol%	°C	wt%	vol%
080	3.56	5.06	460	49.51	54.48
090	4.28	5.99	480	52.32	57.20
100	5.13	7.05	500	55.44	60.20
120	6.78	9.10	520	58.99	63.59
140	8.18	10.80	540	62.31	66.73
160	9.81	12.76	560	65.23	69.48
180	11.76	15.05	580	67.89	71.96
200	13.96	17.59			
220	16.33	20.26			
240	18.85	23.06			
260	21.55	26.01			
280	24.42	29.10			
300	27.36	32.22			
320	30.24	35.24			
340	33.02	38.11			
360	35.72	40.87			
380	38.42	43.58			
400	41.14	46.29			
420	43.90	49.01			
440	46.70	51.75			

PROPERTIES OF TBP CUTS

LIGHT NAPHTHA	Cuts °C	Yield wt%	Yield vol %	Den 15°C kg/m3	S wt%	RSH mg/kg	RON clear	MON clear			Napht. vol%	Aro. vol%	RVP kPa			
	15-65	2.03	2.85	645	0.0001	1	70.4	70.4			4.0	0.2	-			
	15-80	2.85	3.91	659	0.0002	1	65.4	66.2			8.0	0.6	-			
HEAVY NAPHTHA	Cuts °C	Yield wt%	Yield vol %	Den 15°C kg/m3	S wt%	RSH mg/kg					Napht. vol%	Aro. vol%				
	80-150	5.39	6.68	730	0.0110	1					24.3	6.9				
	80-175	7.69	9.39	740	0.0333	1					23.3	9.3				
	100-150	3.82	4.69	738	0.0148	1					24.5	8.3				
KEROSENE	Cuts °C	Yield wt%	Yield vol %	Den 15°C kg/m3	S wt%	RSH mg/kg	Smoke Pt mm	Acidity mgKOH/g	Cetane Index	Freez. Pt °C		Aro. vol%	Visc cSt 50°C			Flash Point
	150-230	8.62	9.91	786	0.263	2	29	0.11	48.2	-59		14.1	1.3			-
	175-230	6.32	7.19	795	0.327	2	28	0.11	48.4	-53		13.8	1.4			-
	150-250	11.23	12.78	794	0.387	2	28	0.11	48.9	-52		15.3	1.4			-
GASOIL	Cuts °C	Yield wt%	Yield vol %	Den 15°C kg/m3	S wt%		Anilin Point °C		Cetane Index	Cloud Pt C	CFPP C	Pour Pt C	Visc cSt 50°C	Visc cSt 100°C	UOPK	Flash Point
	175-400	29.89	31.83	849	1.680		68		50.3	-4	-8	-12	3.1	1.3	11.8	-
	230-400	23.57	24.64	865	2.050		70		51.6	-1	-3	-4	4.1	1.6	11.8	-
	230-375	20.17	21.26	858	1.910		69		52.2	-6	-7	-9	3.6	1.5	11.8	-
VACUUM DISTILLATE	Cuts °C	Yield wt%	Yield vol %	Den 15°C kg/m3	S wt%	Conrad. wt%	Anilin Point °C	Ni mg/kg	Va mg/kg	Total N wt%	Bas N mg/kg	Pour Pt C	Visc cSt 100°C	Visc cSt 150°C	UOPK	Asp C7 wt %
	375-550	26.07	25.25	933	3.23	0.4	77	0	1	0.096	267	36	9.1	3.4	11.8	0.3
	375-565	28.17	27.22	936	3.27	0.6	77	0	2	0.104	288	37	9.9	3.6	11.8	0.4
	375-580	30.15	29.06	938	3.30	0.9	77	1	3	0.111	308	38	10.7	3.8	11.8	0.6
	400-580	26.75	25.68	942	3.36	1.0	78	1	3	0.119	332	40	12.7	4.3	11.8	0.6
RESIDUE	Cuts °C	Yield wt%	Yield vol %	Den 15°C kg/m3	S wt%	Conrad. wt%	Acidity mgKOH/g	Ni mg/kg	Va mg/kg	Total N wt%		Pour Pt C	Visc cSt 100°C	Visc cSt 150°C	Pene mm/10	Asp C7 wt%
	> 375	62.26	57.10	986	3.85	14.8	0.3	43	157	0.288		27	271	39	1280	11.2
	> 550	36.19	31.85	1027	4.30	25.2	0.4	73	270	0.427		82	42500	1390	18	19.1
	> 565	34.09	29.88	1031	4.33	26.6	0.5	78	286	0.441		89	90300	2400	13	20.2
	> 580	32.11	28.04	1035	4.37	27.9	0.5	82	302	0.455		96	201000	4270	10	21.3