Reference: CLKBL23B
Crude: Cold Lake Blend

ExxonMobil

Crude Summary Report

General Information		Molecules (%wt on crude)		Whole Crude Properties	
Reference:	CLKBL23B	methane + ethane	0.00	Density @ 15°C (g/cc)	0.9367
Name:	Cold Lake Blend	propane	0.01	**API Gravity**	**19.5**
		isobutane	0.41	Total Sulfur (% wt)	3.87
Origin:	Alberta	n-butane	1.05	Pour Point (°C)	-20
		isopentane	1.41	Viscosity @ 20°C (cSt)	1019.3
Assay Date:	10/26/2023	n-pentane	1.84	Viscosity @ 40°C (cSt)	173.8
		cyclopentane	0.12	Nickel (ppm)	55.8
Comments:	Summer	C6 paraffins	2.42	Vanadium (ppm)	145.2
		C6 naphthenes	0.75	Total Nitrogen (ppm)	3062
		benzene	0.14	Total Acid Number (mgKOH/g)	1.12
		C7 paraffins	1.14	Mercaptan Sulfur (ppm)	69.3
		C7 naphthenes	0.88	Hydrogen Sulfide (ppm)	0.0
		toluene	0.30	Reid Vapor Pressure (kPa)	51.9

Cut Data		Atmospheric Cuts									Vacuum Cuts			
Start (°C)	IBP	C5	65	100	150	200	250	300	350	370	370	450	500	550
End (°C)	FBP	65	100	150	200	250	300	350	370	FBP	450	500	550	FBP
Yield (% wt)		4.4	2.4	2.8	2.7	3.5	5.6	7.3	3.2	66.7	13.9	8.5	8.0	36.2
Yield (% vol)		6.4	3.0	3.5	3.1	3.9	6.0	7.5	3.2	61.1	13.6	8.2	7.6	31.6
Cumulative Yield (% wt)		1.4	5.8	8.2	11.0	13.7	17.2	22.9	30.1	33.3	33.3	47.2	55.7	63.8
Volume Average B.P. (°C)	423	37.8	81	125	175	227	276	325	360	568	410	475	525	671
Density @ 15°C (g/cc)	0.9367	0.6307	0.7397	0.7616	0.8001	0.8406	0.8774	0.9052	0.9326	1.0210	0.9533	0.9724	0.9832	1.0720
API Gravity	19.5	92.8	59.7	54.2	45.3	36.8	29.7	24.7	20.1	7.0	16.9	13.9	12.3	0.4
UOPK	11.50			11.74	11.63	11.48	11.35	11.32	11.19	11.24	11.23	11.35	11.47	11.13
Molecular Weight (g/mol)				109	137	169	203	243	271	578	321	411	519	1008
Total Sulfur (% wt)	3.9	0.024	0.026	0.081	0.344	0.79	1.39	2.18	2.78	5.26	3.14	3.47	4.13	6.74
Mercaptan Sulfur (ppm)	69.3		112.9	19.7	1.0	17.9	26.6							
Total Nitrogen (ppm)	3062					17	42	127	309	4558	1038	2071	2638	6918
Basic Nitrogen (ppm)	809					4	23	70	151	1197	311	516	800	1784
Total Acid Number (mgKOH/g)	1.12	0.00	0.01	0.02	0.04	0.11	0.38	0.99	1.53	1.46	2.08	2.28	2.03	0.90
Viscosity @ 20°C (cSt)	1019				1.51									
Viscosity @ 40°C (cSt)	174				1.12	1.87	3.65	8.90	20.2					
Viscosity @ 50°C (cSt)	88.1					1.58	2.92	6.54	13.6	65885	50.6	323	1725	
Viscosity @ 60°C (cSt)										20568	31.4	166	764	
Viscosity @ 100°C (cSt)										717	7.99	25.3	74.3	1040038
Viscosity @ 130°C (cSt)														45231
Viscosity @ 150°C (cSt)														9216
RON (Clear)		75.7	40.1	65.3	30.5									
MON (Clear)		73.0	56.0	62.4	30.2									
Paraffins (% wt)	15.1	97.3	64.3	34.0	41.1									
Naphthenes (%wt)	21.6	2.6	31.6	44.9	47.3									
Aromatics (% wt)	62.7	0.0	4.2	21.2	11.4									
Pour Point (°C)	-20					-66	-47	-24	-10	46	1	8	12	75
Cloud Point (°C)						-65	-45	-21						
Freeze Point (°C)					-67	-59	-40							
Smoke Point (mm)					25	20	14							
Cetane Index (D4737A)					34	37	38	41	40					
Naphthalenes (% vol)					0.1	0.8	4.7	7.6						
Aniline Point (°C)				52.9	54.6	58.3	58.1	54.9	54.4		58.6	64.7	68.9	
Hydrogen (% wt)	12.1	16.6	15.3	13.8	14.2	13.3	12.9	12.2	11.6		11.6	11.6	11.5	
Total Wax (% wt)	0.8									0.2	0.6	0.3	0.1	0.0
C7 Asphaltenes (% wt)	9.9									14.8		0.0	0.0	27.2
Micro Carbon Residue (% wt)	10.7									16.0		0.4	2.9	28.7
Vanadium (ppm)	145.2									217.7		0.0	0.0	400.6
Nickel (ppm)	55.8									83.6		0.0	0.0	153.8
Iron (ppm)	8.8									13.3		0.0	0.0	24.4
Sodium (ppm)	4.8													
Mercury (ppb)	9.8													
Arsenic (ppb)	134													

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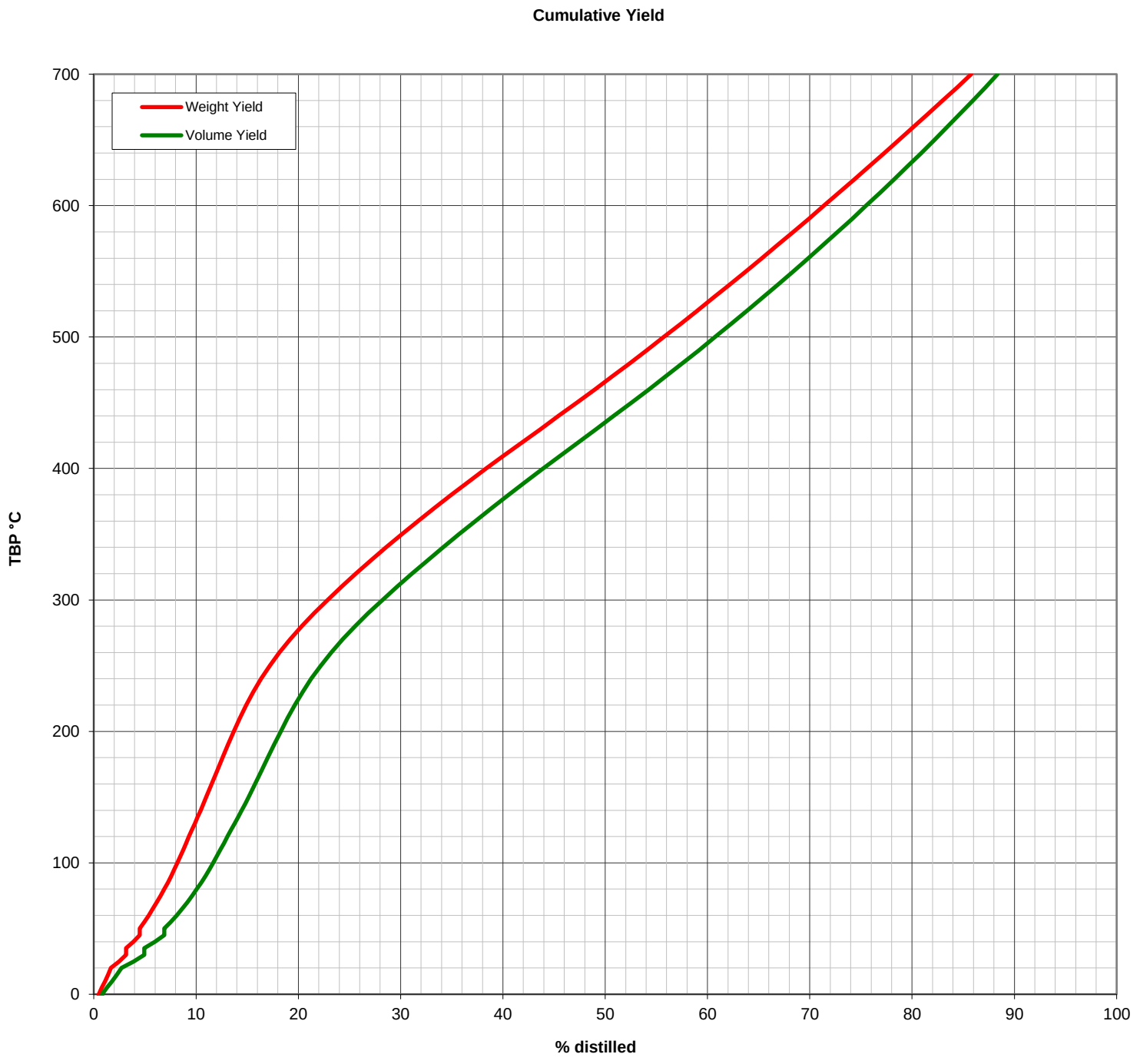
Yield Distribution



Cumulative Volume % Distilled at 10 Degree C (TBP) Intervals

	0	10	20	30	40	50	60	70	80	90
0				4.9	6.0	6.9	8.1	9.1	10.1	10.9
100	11.7	12.4	13.1	13.8	14.5	15.1	15.8	16.4	17.0	17.6
200	18.3	18.9	19.6	20.4	21.3	22.2	23.2	24.3	25.5	26.8
300	28.2	29.6	31.1	32.6	34.1	35.7	37.3	38.9	40.6	42.2
400	43.9	45.7	47.4	49.1	50.8	52.5	54.2	55.9	57.5	59.2
500	60.7	62.3	63.9	65.4	66.9	68.4	69.8	71.3	72.7	74.1