

Reference: BAKN523Y  
Crude: Bakken



## Crude Summary Report

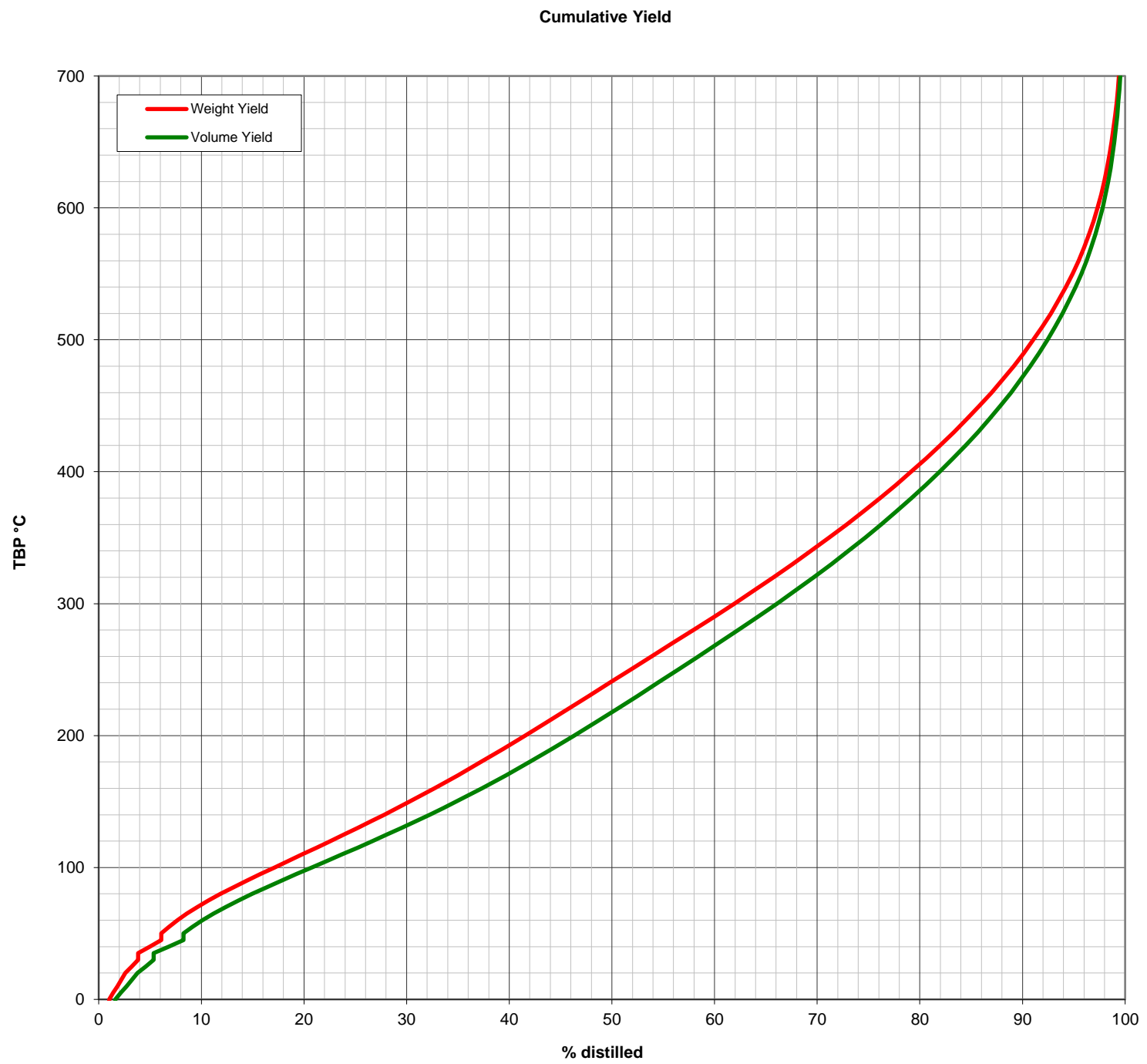
General Information		Molecules (%wt on crude)			Whole Crude Properties		
Reference:	BAKN523Y	methane + ethane	0.06	Density @ 15°C (g/cc)	0.8069		
Name:	Bakken	propane	0.56	<b>API Gravity</b>	<b>43.8</b>		
Origin:	North Dakota	isobutane	0.28	Total Sulfur (% wt)	0.09		
Assay Date:	12/15/2023	n-butane	1.46	Pour Point (°C)	-80		
Comments:		isopentane	1.14	Viscosity @ 20°C (cSt)	2.7		
		n-pentane	2.15	Viscosity @ 40°C (cSt)	1.9		
		cyclopentane	0.15	Nickel (ppm)	0.5		
		C6 paraffins	3.74	Vanadium (ppm)	0.3		
		C6 naphthenes	1.67	Total Nitrogen (ppm)	318		
		benzene	0.21	Total Acid Number (mgKOH/g)	0.03		
		C7 paraffins	4.33	Mercaptan Sulfur (ppm)	1.8		
		C7 naphthenes	3.62	Hydrogen Sulfide (ppm)	0.0		
		toluene	0.58	Reid Vapor Pressure (kPa)	85.4		

Cut Data	IBP	Atmospheric Cuts									Vacuum Cuts				
		C5	65	100	150	200	250	300	350	370	370	450	500	550	
Start (°C)															
End (°C)	FBP	65	100	150	200	250	300	350	370	FBP	450	500	550	FBP	
Yield (% wt)		6.4	8.5	13.2	11.3	10.3	10.1	9.2	3.4	25.5	11.3	5.3	3.8	5.1	
Yield (% vol)		7.9	9.6	14.1	11.5	10.1	9.6	8.6	3.1	22.3	10.1	4.6	3.3	4.3	
Cumulative Yield (% wt)		2.2	8.6	17.1	30.3	41.6	51.8	61.9	71.2	74.5	74.5	85.8	91.1	94.9	
Volume Average B.P. (°C)	243	42.1	83	124	174	225	275	324	360	479	408	474	523	618	
Density @ 15°C (g/cc)	0.8069	0.6438	0.7174	0.7523	0.7868	0.8149	0.8448	0.8631	0.8836	0.9193	0.8963	0.9205	0.9312	0.9633	
API Gravity	43.8	88.3	65.7	56.5	48.3	42.1	35.9	32.4	28.6	22.3	26.3	22.1	20.4	15.3	
UOPK	12.09			11.89	11.82	11.83	11.78	11.87	11.81	12.03	11.93	11.98	12.10	12.15	
Molecular Weight (g/mol)				110	138	171	209	254	288	446	344	443	560	891	
Total Sulfur (% wt)	0.09	0.000	0.000	0.001	0.001	0.003	0.012	0.084	0.162	0.294	0.215	0.276	0.330	0.459	
Mercaptan Sulfur (ppm)	1.8	0.2	0.6	1.2	2.0	2.2	1.6								
Total Nitrogen (ppm)	318					3	17	78	177	1189	489	1031	1314	2798	
Basic Nitrogen (ppm)	100					1	9	41	79	365	164	358	447	755	
Total Acid Number (mgKOH/g)	0.03	0.00	0.00	0.00	0.01	0.01	0.03	0.04	0.06	0.08	0.08	0.09	0.09	0.07	
Viscosity @ 20°C (cSt)	2.72				1.29										
Viscosity @ 40°C (cSt)	1.92				0.99	1.57	2.87	6.29	12.6						
Viscosity @ 50°C (cSt)	1.66					1.36	2.38	4.88	9.13	116					
Viscosity @ 60°C (cSt)										69.2	24.6	119	389		
Viscosity @ 100°C (cSt)										15.3	16.9	70.2	205		
Viscosity @ 130°C (cSt)											5.66	15.3	32.2	244	
Viscosity @ 150°C (cSt)														64.7	
RON (Clear)		73.7	45.6	54.8	31.0										
MON (Clear)		71.3	57.2	54.7	31.6										
Paraffins (% wt)	39.8	97.1	61.9	39.7	51.0										
Naphthenes (%wt)	39.2	2.9	36.1	49.6	38.4										
Aromatics (% wt)	21.0	0.0	2.1	10.6	10.6										
Pour Point (°C)	-80						-57	-34	-14	-4	19	7	22	34	29
Cloud Point (°C)							-55	-32	-12						
Freeze Point (°C)							-65	-48	-27						
Smoke Point (mm)							28	23	18						
Cetane Index (D4737A)							39	47	51	59	60				
Naphthalenes (% vol)							0.0	1.9	6.3	8.5					
Aniline Point (°C)				52.5	56.3	62.8	70.0	76.6	80.7		87.3	95.7	99.1		
Hydrogen (% wt)	14.0	16.6	15.4	14.4	14.5	13.9	13.5	13.2	13.0		12.8	12.7	12.7		
Total Wax (% wt)	5.8									6.9	7.9	8.9	7.3	2.5	
C7 Asphaltenes (% wt)	0.0									0.0	0.0	0.0	0.2		
Micro Carbon Residue (% wt)	0.6									2.3	0.1	1.1	10.7		
Vanadium (ppm)	0.3									1.0	0.0	0.0	4.9		
Nickel (ppm)	0.5									2.1	0.0	0.0	10.6		
Iron (ppm)	1.6									6.3	0.0	0.0	31.2		
Sodium (ppm)	1.1														
Mercury (ppb)	3.1														
Arsenic (ppb)	11														

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 Crude: **Bakken**

## Yield Distribution



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

	0	10	20	30	40	50	60	70	80	90
0				5.4	6.8	8.3	10.1	12.4	15.0	17.8
100	20.8	23.7	26.7	29.5	32.2	34.8	37.3	39.7	42.0	44.2
200	46.3	48.4	50.5	52.5	54.5	56.5	58.4	60.4	62.3	64.2
300	66.1	67.9	69.7	71.4	73.1	74.7	76.2	77.7	79.2	80.6
400	81.9	83.2	84.5	85.6	86.8	87.8	88.9	89.8	90.8	91.6
500	92.4	93.2	93.9	94.6	95.2	95.7	96.2	96.7	97.1	97.5