

Reference: UPZAKM23
Crude: Upper Zakum



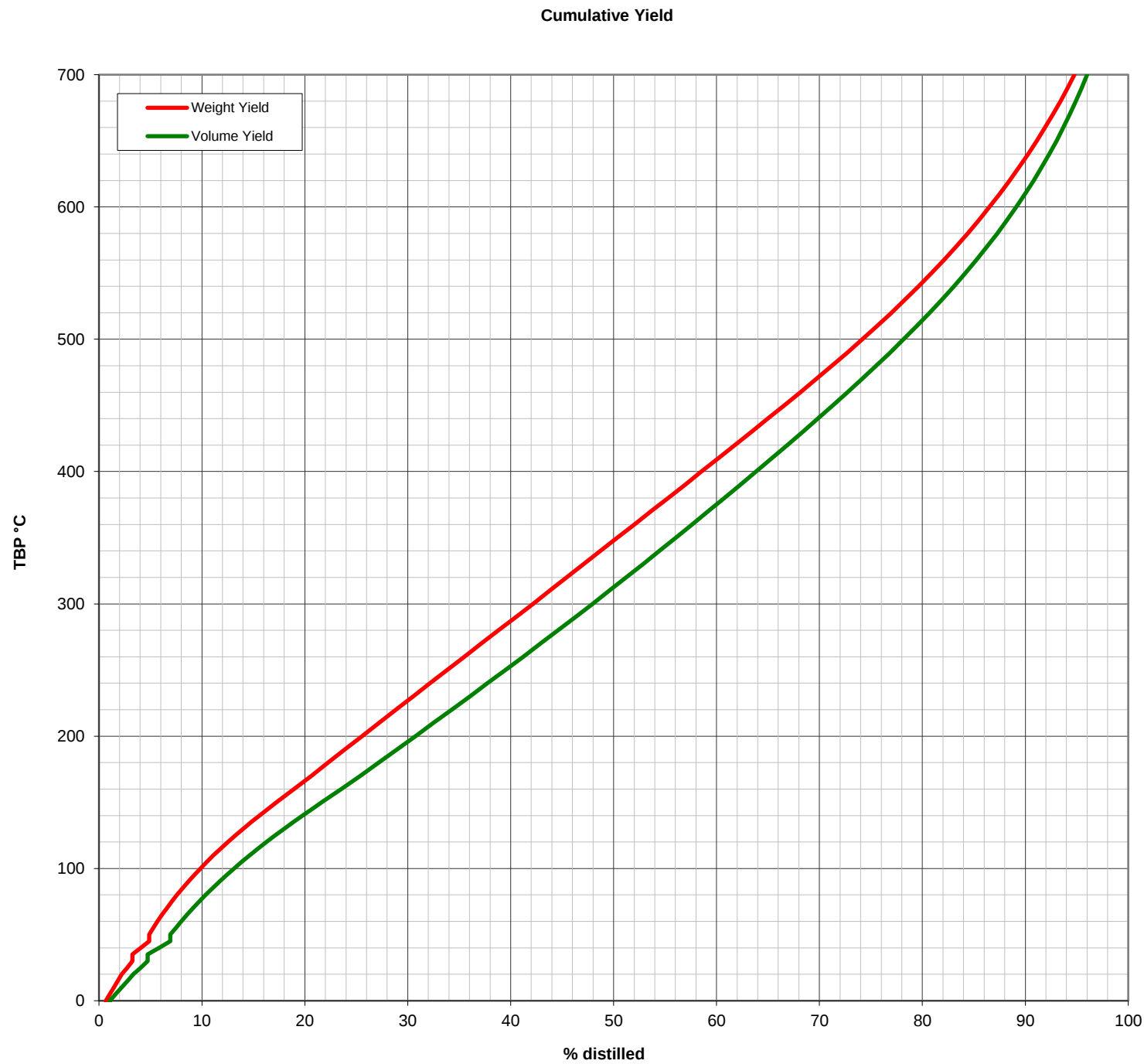
Crude Summary Report

General Information		Molecules (%wt on crude)									Whole Crude Properties				
Reference:	UPZAKM23	methane + ethane	0.00	Density @ 15°C (g/cc)							0.8593				
Name:	Upper Zakum	propane	0.31	API Gravity							33.1				
Origin:	Abu Dhabi (UAE)	isobutane	0.36	Total Sulfur (% wt)							2.07				
		n-butane	1.55	Pour Point (°C)							-21				
		isopentane	1.04	Viscosity @ 20°C (cSt)							10.5				
Assay Date:	9/13/2024	n-pentane	1.62	Viscosity @ 40°C (cSt)							5.9				
Comments:		cyclopentane	0.10	Nickel (ppm)							9.9				
		C6 paraffins	2.34	Vanadium (ppm)							11.6				
		C6 naphthenes	0.49	Total Nitrogen (ppm)							863				
		benzene	0.09	Total Acid Number (mgKOH/g)							0.07				
		C7 paraffins	2.38	Mercaptan Sulfur (ppm)							28.0				
		C7 naphthenes	0.76	Hydrogen Sulfide (ppm)							0.0				
		toluene	0.36	Reid Vapor Pressure (kPa)							59.5				
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)		4.3	3.7	7.4	8.3	8.3	8.3	8.2	3.3	46.3	12.9	7.6	6.7	19.1	
Yield (% vol)		5.8	4.6	8.5	9.1	8.8	8.5	8.1	3.2	40.8	12.1	6.9	6.0	15.8	
Cumulative Yield (% wt)		1.8	6.1	9.9	17.2	25.5	33.8	42.2	50.4	53.7	53.7	66.6	74.2	80.9	
Volume Average B.P. (°C)	329	39.0	83	126	175	225	275	325	360	530	409	475	524	649	
Density @ 15°C (g/cc)	0.8593	0.6353	0.6970	0.7396	0.7806	0.8068	0.8430	0.8645	0.8922	0.9702	0.9121	0.9415	0.9582	1.0316	
API Gravity	33.1	91.2	71.5	59.8	49.7	43.8	36.3	32.1	27.0	14.3	23.6	18.7	16.1	5.6	
UOPK	11.95			12.11	11.92	11.95	11.80	11.85	11.70	11.65	11.74	11.72	11.77	11.47	
Molecular Weight (g/mol)				111	139	172	209	254	285	526	340	431	539	956	
Total Sulfur (% wt)	2.1	0.001	0.001	0.003	0.042	0.216	0.96	1.96	2.44	3.73	2.61	2.96	3.48	4.87	
Mercaptan Sulfur (ppm)	28.0														
Total Nitrogen (ppm)	863					0	7	113	320	1818	675	1134	1488	2978	
Basic Nitrogen (ppm)	273					1	8	48	98	572	172	287	367	1028	
Total Acid Number (mgKOH/g)	0.07	0.00	0.00	0.00	0.01	0.02	0.04	0.09	0.14	0.12	0.17	0.19	0.17	0.05	
Viscosity @ 20°C (cSt)	10.5				1.34										
Viscosity @ 40°C (cSt)	5.91				1.02	1.57	2.73	5.54	10.1						
Viscosity @ 50°C (cSt)	4.67					1.36	2.27	4.34	7.51	619	18.8	77.7	286		
Viscosity @ 60°C (cSt)										318	13.3	48.2	158		
Viscosity @ 100°C (cSt)										45.8	4.76	12.0	28.2	3822	
Viscosity @ 130°C (cSt)														595	
Viscosity @ 150°C (cSt)														231	
RON (Clear)		74.7	28.2	48.7	34.7										
MON (Clear)		71.9	42.6	49.1	33.8										
Paraffins (% wt)	35.7	97.4	79.9	55.5	59.1										
Naphthenes (%wt)	21.1	2.6	18.2	27.4	20.6										
Aromatics (% wt)	43.1	0.0	2.0	17.1	20.3										
Pour Point (°C)	-21					-44	-22	-1	11	13	27	40	44	62	
Cloud Point (°C)						-42	-19	2							
Freeze Point (°C)					-58	-37	-16								
Smoke Point (mm)					26	22	17								
Cetane Index (D4737A)					43	51	52	58	56						
Naphthalenes (% vol)					0.1	2.7	8.2	10.9							
Aniline Point (°C)				47.7	50.9	58.3	65.1	70.0	73.0		74.7	76.8	80.4		
Hydrogen (% wt)	13.1	16.6	15.7	14.3	14.2	13.9	13.4	13.0	12.6		12.3	12.0	11.9		
Total Wax (% wt)	11.9									9.3	17.9	13.6	9.3	1.9	
C7 Asphaltenes (% wt)	1.4									3.0		0.0	0.0	7.3	
Micro Carbon Residue (% wt)	4.8									10.4		0.1	1.6	24.7	
Vanadium (ppm)	11.6									25.0		0.0	0.0	60.6	
Nickel (ppm)	9.9									21.3		0.0	0.0	51.6	
Iron (ppm)	0.4									0.9		0.0	0.0	2.3	
Sodium (ppm)	0.3														
Mercury (ppb)	1.0														
Arsenic (ppb)	5														

This assay information is provided to you courtesy of ExxonMobil Technology & Engineering Company (EMTEC) and is based on a range of data and information. While care has been taken in preparing these materials, no representations, warranties or guarantees are made as to their accuracy, reliability, quality, correctness or completeness. Each user must make its own determination and judgment on applying any information in this assay. Any and all use of this information shall be the sole responsibility of the user, and the user releases EMTEC, its parent and its affiliates from any and all claims arising from its use and shall defend and hold EMTEC, its parent and its affiliates harmless from any third party claims arising from the user's application or use of the assay information.

Reference: **UPZAKM23**
Crude: **Upper Zakum**

Yield Distribution



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

	0	10	20	30	40	50	60	70	80	90
0				4.7	5.8	6.9	8.0	9.1	10.4	11.7
100	13.1	14.7	16.3	18.0	19.8	21.6	23.5	25.4	27.2	29.0
200	30.7	32.5	34.3	36.0	37.8	39.5	41.2	42.9	44.6	46.3
300	47.9	49.6	51.2	52.8	54.4	56.0	57.6	59.2	60.8	62.3
400	63.8	65.4	66.9	68.4	69.8	71.3	72.7	74.1	75.5	76.9
500	78.2	79.5	80.7	81.9	83.1	84.2	85.3	86.3	87.3	88.2