

22777 Springwoods Village Parkway,  
Spring, TX 77389

**ZAFRB16X**

	Whole crude	Butane and Lighter IBP - 60F	Lt. Naphtha C5 - 165F	Hvy Naphtha 165 - 330F	Kerosene 330 - 480F	Diesel 480 - 650F	Vacuum Gas Oil 650 - 1000F	Vacuum Residue 1000F+
Cut volume, %	100.0	1.4	4.1	15.4	16.8	20.1	29.5	12.8
API Gravity,	30.0	123.0	82.0	54.0	38.8	30.9	20.0	6.8
Specific Gravity (60/60F),	0.876	0.556	0.663	0.763	0.831	0.871	0.934	1.023
Carbon, wt %	86.5	82.4	83.9	85.7	86.3	86.8	87.2	86.7
Hydrogen, wt %	13.0	17.6	16.1	14.3	13.6	13.0	12.2	11.7
Pour point, F	(65.2)			(134.6)	(78.7)	(5.4)	86.4	134.2
Neutralization number (TAN), MG/GM	0.768	0.000	0.002	0.026	0.157	0.826	1.436	0.805
Sulfur, wt%	0.254	0.000	0.002	0.014	0.060	0.181	0.328	0.686
Viscosity at 20C/68F, cSt	12.9	0.4	0.6	0.9	2.0	8.6	649.3	37,636,284,046.9
Viscosity at 40C/104F, cSt	7.3	0.4	0.5	0.7	1.5	4.8	138.2	154,323,513.2
Viscosity at 50C/122F, cSt	5.8	0.3	0.4	0.6	1.3	3.8	75.6	17,744,884.5
Mercaptan sulfur, ppm	3.0	0.7	8.4	41.6	12.5	2.2	0.3	0.0
Nitrogen, ppm	2,520.3	-	-	1.3	16.3	170.4	2,031.4	12,331.3
CCR, wt%	3.1						0.1	20.5
N-Heptane Insolubles (C7 Asphaltenes), wt%	0.1						-	0.8
Nickel, ppm	15.0							100.4
Vanadium, ppm	2.3							15.5
Calcium, ppm	2.6							
Reid Vapor Pressure (RVP) Whole Crude, psi	5.1							
Hydrogen Sulfide (dissolved), ppm	-							
Salt content, ptb	4.9							
Paraffins, vol %	23.3	100.0	79.4	31.3	25.8	23.0	14.3	0.8
Naphthenes, vol %	41.8	-	20.6	60.0	56.7	51.4	38.4	6.9
Aromatics (FIA), vol %	34.9	-	-	8.7	17.5	25.6	47.3	92.3
Distillation type, TBP								
IBP, F	12.7		60.8	166.2	330.8	480.8	651.3	1,001.2
5 vol%, F	158.1		67.8	176.0	338.2	488.3	663.4	1,012.2
10 vol%, F	220.1		72.3	186.0	346.3	496.6	677.2	1,025.0
20 vol%, F	321.4		81.0	204.2	362.3	513.2	705.5	1,052.3
30 vol%, F	414.8		98.9	221.0	378.0	529.8	735.1	1,082.3
40 vol%, F	499.3		108.1	237.0	393.3	546.4	765.8	1,115.8
50 vol%, F	582.2		126.7	252.8	408.4	563.1	797.0	1,153.7
60 vol%, F	670.4		136.1	268.4	423.1	580.0	829.9	1,196.9
70 vol%, F	770.4		144.4	284.0	437.6	597.1	865.6	1,246.9
80 vol%, F	886.3		151.9	299.4	451.9	614.4	904.8	1,306.2
90 vol%, F	1,056.8		158.7	314.8	466.0	632.0	949.0	1,380.2
95 vol%, F	1,200.6		161.9	322.4	473.0	641.0	973.5	1,427.6
EP, F	1,439.7		164.7	329.2	479.3	649.1	997.2	1,499.1
Freeze point, F				(122.3)	(63.4)	9.3		
Smoke point, mm				24.6	18.9	13.8		
Naphthalenes (D1840), vol%					1.6	9.4		
Viscosity at 100C/212F, cSt	2.4	0.3	0.3	0.4	0.7	1.6	10.3	14,138.9
Viscosity at 150C/302F, cSt	1.4	0.2	0.2	0.3	0.5	0.9	3.5	353.5
Cetane Index 1990 (D4737),				27.5	35.1	46.3		
Cloud point, F				(130.3)	(75.4)	(1.7)		
Aniline pt, F					130.4	149.7	168.6	