

22777 Springwoods Village Parkway,
Spring, TX 77389

THUND14Y

	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	1.5	4.5	15.2	14.7	16.6	28.7	18.9
API Gravity,	31.7	122.0	86.2	58.4	45.0	34.4	21.9	7.8
Specific Gravity (60/60F),	0.867	0.558	0.650	0.745	0.802	0.853	0.923	1.016
Carbon, wt %	85.7	82.5	83.7	85.5	85.7	86.1	86.1	85.8
Hydrogen, wt %	13.2	17.5	16.3	14.5	14.2	13.3	12.4	12.0
Pour point, F	15.8			(137.8)	(64.3)	10.8	91.8	127.2
Neutralization number (TAN), MG/GM	0.056	0.000	0.001	0.012	0.039	0.095	0.092	0.026
Sulfur, wt%	1.141	0.000	0.000	0.009	0.097	0.628	1.388	2.705
Viscosity at 20C/68F, cSt	14.7	0.4	0.6	0.9	1.8	6.4	190.2	1,063,033,919.9
Viscosity at 40C/104F, cSt	7.8	0.4	0.5	0.7	1.3	3.8	59.4	15,983,976.6
Viscosity at 50C/122F, cSt	6.0	0.3	0.4	0.6	1.1	3.1	37.3	2,950,145.2
Mercaptan sulfur, ppm	14.0	0.0	0.0	1.9	8.6	1.9	0.1	0.0
Nitrogen, ppm	1,668.4	-	-	0.6	9.8	84.6	1,262.2	5,710.9
CCR, wt%	5.1						0.4	22.4
N-Heptane Insolubles (C7 Asphaltenes), wt%	2.2						-	10.0
Nickel, ppm	14.3							64.3
Vanadium, ppm	15.9							71.5
Calcium, ppm	4.3							
Reid Vapor Pressure (RVP) Whole Crude, psi	5.3							
Hydrogen Sulfide (dissolved), ppm	-							
Salt content, ptb	2.0							
Paraffins, vol %	35.1	100.0	88.7	55.2	50.3	34.0	20.4	2.7
Naphthenes, vol %	28.7	-	11.3	34.3	34.0	40.6	32.4	14.1
Aromatics (FIA), vol %	36.2	-	-	10.5	15.7	25.4	47.1	83.3
Distillation type, TBP								
IBP, F	15.7		60.7	166.2	330.7	480.8	651.5	1,001.4
5 vol%, F	149.7		67.3	176.2	337.3	488.5	665.2	1,014.6
10 vol%, F	217.1		72.9	186.4	344.6	496.9	680.5	1,029.6
20 vol%, F	319.2		83.6	205.2	359.4	513.8	711.4	1,061.0
30 vol%, F	420.5		100.2	222.5	374.2	530.6	743.1	1,094.5
40 vol%, F	523.0		107.0	238.9	389.2	547.4	775.6	1,130.8
50 vol%, F	625.3		123.1	254.6	404.3	564.3	809.1	1,170.5
60 vol%, F	732.3		133.1	270.0	419.5	581.2	843.8	1,214.5
70 vol%, F	849.0		142.1	285.1	434.7	598.2	880.0	1,264.5
80 vol%, F	984.0		150.4	300.0	449.8	615.4	917.9	1,323.0
90 vol%, F	1,158.9		158.0	315.0	464.9	632.6	957.7	1,394.5
95 vol%, F	1,284.4		161.5	322.5	472.5	641.3	978.5	1,438.6
EP, F	1,464.4		164.6	329.2	479.2	649.1	997.8	1,505.8
Freeze point, F				(126.2)	(51.8)	24.3		
Smoke point, mm				28.9	21.5	13.5		
Naphthalenes (D1840), vol%					1.4	8.6		
Viscosity at 100C/212F, cSt	2.4	0.3	0.3	0.4	0.7	1.4	7.6	9,052.2
Viscosity at 150C/302F, cSt	1.3	0.2	0.2	0.3	0.5	0.9	3.0	374.7
Cetane Index 1990 (D4737),				36.8	46.7	53.9		
Cloud point, F				(133.6)	(59.4)	14.7		
Aniline pt, F					139.3	159.2	177.3	