

22777 Springwoods Village Parkway,  
Spring, TX 77389

**VOLVE15X**

	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	1.0	4.6	13.4	13.1	16.6	33.0	18.3
API Gravity,	29.1	118.8	84.2	56.6	43.6	33.7	21.2	7.9
Specific Gravity (60/60F),	0.881	0.565	0.656	0.752	0.808	0.856	0.926	1.015
Carbon, wt %	85.3	82.5	83.9	86.1	85.8	85.5	85.2	84.7
Hydrogen, wt %	12.9	17.5	16.1	13.9	14.0	13.3	12.3	11.6
Pour point, F	26.6			(119.0)	(58.0)	10.7	99.3	114.3
Neutralization number (TAN), MG/GM	0.111	0.011	0.013	0.021	0.048	0.099	0.166	0.131
Sulfur, wt%	1.780	0.000	0.000	0.009	0.218	1.167	2.296	3.596
Viscosity at 20C/68F, cSt	22.5	0.4	0.5	0.8	1.7	6.5	231.8	12,971,485.1
Viscosity at 40C/104F, cSt	10.8	0.3	0.4	0.6	1.3	3.9	66.8	420,722.6
Viscosity at 50C/122F, cSt	8.0	0.3	0.4	0.6	1.1	3.2	40.8	106,842.6
Mercaptan sulfur, ppm	14.0	0.0	0.1	0.8	3.3	4.6	0.9	0.0
Nitrogen, ppm	2,202.3	-	-	0.0	1.0	96.0	1,910.5	7,166.1
CCR, wt%	4.1						0.4	18.8
N-Heptane Insolubles (C7 Asphaltenes), wt%	0.5						-	2.1
Nickel, ppm	5.0							23.7
Vanadium, ppm	37.1							175.0
Calcium, ppm	0.5							
Reid Vapor Pressure (RVP) Whole Crude, psi	6.3							
Hydrogen Sulfide (dissolved), ppm	-							
Salt content, ptb	1.4							
Paraffins, vol %	28.7	100.0	83.9	47.2	43.5	30.9	18.3	2.5
Naphthenes, vol %	30.8	-	16.1	33.7	38.3	44.3	34.5	11.8
Aromatics (FIA), vol %	40.5	-	-	19.2	18.2	24.9	47.2	85.7
Distillation type, TBP								
IBP, F	37.4		61.0	166.0	330.8	480.9	651.6	1,001.2
5 vol%, F	155.6		69.1	174.5	337.7	489.0	666.1	1,012.5
10 vol%, F	222.3		75.4	183.7	345.5	498.0	682.2	1,025.6
20 vol%, F	341.5		96.2	201.2	360.9	515.7	714.6	1,053.2
30 vol%, F	456.5		103.3	218.0	376.2	533.2	747.5	1,083.4
40 vol%, F	563.1		110.3	234.4	391.5	550.4	780.9	1,116.8
50 vol%, F	662.5		127.5	250.5	406.6	567.5	814.7	1,154.4
60 vol%, F	761.5		135.8	266.5	421.6	584.3	848.8	1,197.3
70 vol%, F	864.5		143.7	282.4	436.4	600.9	883.5	1,247.4
80 vol%, F	977.9		151.1	298.3	451.1	617.4	919.5	1,307.8
90 vol%, F	1,136.5		158.2	314.1	465.6	633.8	957.9	1,383.8
95 vol%, F	1,262.6		161.6	322.1	472.8	641.9	978.4	1,431.7
EP, F	1,458.5		164.7	329.2	479.3	649.2	997.8	1,503.0
Freeze point, F				(107.4)	(46.3)	23.3		
Smoke point, mm				30.1	21.7	14.2		
Naphthalenes (D1840), vol%					1.9	9.8		
Viscosity at 100C/212F, cSt	2.8	0.2	0.3	0.4	0.7	1.5	7.7	1,031.4
Viscosity at 150C/302F, cSt	1.5	0.2	0.2	0.3	0.5	0.9	3.0	83.7
Cetane Index 1990 (D4737),				31.8	44.1	52.9		
Cloud point, F				(114.7)	(53.8)	16.0		
Aniline pt, F					132.0	153.3	164.7	