



**EXTENDED HYDROCARBON LIQUID STUDY  
 CERTIFICATE OF ANALYSIS**

<b>Company:</b>	<b>Synergy Resources</b>	<b>Sample Name:</b>	<b>Wolfson #26-6 Unpressurized Liquid</b>
Sample Date:	5/25/2016	Sample Number:	16052709-08
Sample Facility:	Wolfson #26-6	Date Tested:	6/1/2016
Sample Equipment:	Sight Glass	Test Method:	GPA 2186M
Sample Location:	Not Indicated	Date Reported:	6/2/2016
Sample Pressure:	Ambient		
Sample Temperature:	76°F		
Sampling Method:	GPA-2174		
Type Sample:	Spot		

<b>Components</b>	<b>Mole %</b>	<b>Weight %</b>	<b>Liq. Vol. %</b>
Carbon Dioxide	0.011	0.003	0.003
Nitrogen	0.423	0.079	0.073
Methane	0.038	0.004	0.010
Ethane	0.839	0.169	0.352
Propane	2.944	0.868	1.272
iso-Butane	1.604	0.623	0.823
n-Butane	6.114	2.478	3.138
iso-Pentane	2.178	1.051	1.249
n-Pentane	1.349	0.651	0.767
2-Methylpentane	2.076	1.197	1.359
3-Methylpentane	0.828	0.477	0.542
Heptanes	7.909	5.300	5.810
Octanes	9.276	7.081	7.535
Nonanes	5.470	4.617	4.380
Decanes+	49.506	69.376	66.993
Benzene	0.531	0.278	0.233
Toluene	2.267	1.397	1.190
Ethylbenzene	0.154	0.109	0.093
m-Xylene	2.043	1.450	1.240
p-Xylene	0.330	0.234	0.200
o-Xylene	0.488	0.347	0.291
n-Hexane	2.964	1.708	1.911
2,2,4-Trimethylpentane	0.658	0.503	0.536
<b>Totals</b>	<b>100.000</b>	<b>100.000</b>	<b>100.000</b>

**TOTAL C31+ EXTENDED REPORT  
CERTIFICATE OF ANALYSIS**

Components	Mole %	Weight %	Liq. Vol. %
Carbon Dioxide	0.011	0.003	0.003
Nitrogen	0.423	0.079	0.073
Methane	0.038	0.004	0.010
Ethane	0.839	0.169	0.352
Propane	2.944	0.868	1.272
IsoButane	1.604	0.623	0.823
n-Butane	6.114	2.478	3.138
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m-Xylene	2.043	1.450	1.240
p-Xylene	0.330	0.234	0.200
o-Xylene	0.488	0.347	0.291
Nonanes	5.470	4.617	4.380
Decanes	5.520	5.178	4.706
Undecanes (C11)	5.397	5.134	5.226
Dodecanes (C12)	6.607	7.030	7.059
Tridecanes (C13)	4.291	4.791	4.747
Tetradecanes (C14)	3.490	4.630	4.551
Pentadecanes (C15)	5.404	7.676	7.476
Hexadecanes (C16)	3.086	4.673	4.516
Heptadecanes (C17)	3.491	5.613	5.396
Octadecanes (C18)	2.244	3.819	3.652
Nonadecanes (C19)	1.718	3.085	2.950
Eicosanes (C20)	1.481	2.798	2.645
Heneicoanes (C21)	1.229	2.438	2.297
Docosanes (C22)	1.459	3.031	2.844
Tricosanes (C23)	1.499	3.253	3.107
Tetracosanes (C24)	0.731	1.656	1.544
Pentacosanes (C25)	0.895	2.111	1.968
Hexacosanes (C26)	0.398	0.976	0.905
Heptacosanes (C27)	0.367	0.934	0.892
Octacosanes (C28)	0.076	0.201	0.191
Nonacosanes (C29)	0.048	0.132	0.122
Triacosanes (C30)	0.038	0.108	0.099
Hentriacontanes Plus (C31+)	0.037	0.109	0.100
Totals	100.000	100.000	100.000

## SAMPLE CHARACTERISTICS

RELATIVE SPECIFIC GRAVITY, calculated	<b>0.74309</b>
API GRAVITY AT 60/60 F, calculated	<b>58.9</b>
TRUE VAPOR PRESSURE AT 100 F, PSIA, calculated	<b>41.131</b>
AVERAGE MOLECULAR WEIGHT	<b>149.546</b>
AVERAGE BOILING POINT, F, calculated	<b>337.967</b>
RELATIVE SPECIFIC GRAVITY OF DECANES+ (C10+) FRACTION, calculated	<b>0.76645</b>
AVERAGE MOLECULAR WEIGHT OF DECANES+ (C10+) FRACTION, calculated	<b>192.754</b>
BTU / GALLON OF LIQUID AT 14.73 PSIA, calculated	<b>79,878.21</b>
LBS / GALLON OF LIQUID, calculated	<b>6.195</b>
CUBIC FEET OF GAS / GALLON OF LIQUID, as Ideal Gas, calculated	<b>11.631</b>

NOTATION: ALL CALCULATIONS PERFORMED USING PHYSICAL CONSTANTS FROM GPA 2145-09, THE TABLES OF PHYSICAL CONSTANTS FOR HYDROCARBONS AND OTHER COMPOUNDS OF INTEREST TO THE NATURAL GAS INDUSTRY.