



# McHale

## Performance

7/16/2008

6430 Baum Dr. Knoxville, TN 865-588-2654

### Certificate of Analysis

Cylinder Asset Number: 23631

Sample: Mint Farm Base 1430

Sample Date : 7/2/2008 14:30

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

#### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.7289	0
CO2	0.2374	0
Methane	97.273	982.4573
Ethane	1.2084	21.3851
Propane	0.3345	8.4164
i-Butane	0.0564	1.8341
n-Butane	0.0813	2.6522
i-Pentane	0.026	1.0402
n-Pentane	0.0202	0.8098
Hexanes Plus	0.0339	1.7388

Total: 100.00%

#### Results Summary

Result	Dry
Total Unnormalized Mole%	99.7396
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1020.3339
Gross Heating Value (Btu/Real cu. Ft.)	1022.4577
Real Relative Density	0.5731
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By:

Ben Slocum  
Sr. Technician

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# McHale Performance

6430 Baum Dr. Knoxville, TN 865-588-2654

7/16/2008

## Certificate of Analysis

Cylinder Asset Number: 12674

Sample: Mint Farm Base 1500

Sample Date : 7/2/2008 15:00

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.8097	0
CO2	0.2366	0
Methane	97.2017	981.7372
Ethane	1.2045	21.316
Propane	0.3328	8.3736
i-Butane	0.0557	1.8113
n-Butane	0.08	2.6098
i-Pentane	0.0255	1.0202
n-Pentane	0.0199	0.7978
Hexanes Plus	0.0336	1.7234

Total: 100.00%

### Results Summary

Result	Dry
Total Unnormalized Mole%	99.6335
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1019.3893
Gross Heating Value (Btu/Real cu. Ft.)	1021.5083
Real Relative Density	0.5733
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By:

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Sr. Technician

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# McHale Performance

6430 Baum Dr. Knoxville, TN 865-588-2654

7/16/2008

## Certificate of Analysis

Cylinder Asset Number: 23645

Sample: Mint Farm Base 1530

Sample Date : 7/2/2008 15:30

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.7546	0
CO2	0.237	0
Methane	97.2628	982.3543
Ethane	1.2054	21.332
Propane	0.3271	8.2302
i-Butane	0.0554	1.8016
n-Butane	0.0787	2.5674
i-Pentane	0.0249	0.9962
n-Pentane	0.0196	0.7857
Hexanes Plus	0.0345	1.7696

Total: 100.00%

### Results Summary

Result	Dry
Total Unnormalized Mole%	99.6261
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1019.8369
Gross Heating Value (Btu/Real cu. Ft.)	1021.9578
Real Relative Density	0.573
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By:

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Sr. Technician

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# McHale

## Performance

6430 Baum Dr. Knoxville, TN 865-588-2654

7/16/2008

# Certificate of Analysis

Cylinder Asset Number: 23606

Sample: Mint Farm Base 1230

Sample Date : 7/9/2008 12:30

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.7659	0
CO2	0.1376	0
Methane	97.1711	981.4281
Ethane	1.3936	24.6625
Propane	0.3489	8.7787
i-Butane	0.0516	1.678
n-Butane	0.074	2.4141
i-Pentane	0.0203	0.8122
n-Pentane	0.0167	0.6695
Hexanes Plus	0.0203	1.0412

Total: 100.00%

### Results Summary

Result	Dry
Total Unnormalized Mole%	99.6899
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1021.4843
Gross Heating Value (Btu/Real cu. Ft.)	1023.6092
Real Relative Density	0.5726
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By:

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Sr. Technician

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# McHale Performance

7/16/2008

6430 Baum Dr. Knoxville, TN 865-588-2654

## Certificate of Analysis

Cylinder Asset Number: 12316

Sample: Mint Farm Base 1305

Sample Date : 7/9/2008 13:05

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.8248	0
CO2	0.1378	0
Methane	97.1223	980.9352
Ethane	1.393	24.6519
Propane	0.3398	8.5497
i-Butane	0.0517	1.6812
n-Butane	0.0743	2.4239
i-Pentane	0.0203	0.8122
n-Pentane	0.0167	0.6695
Hexanes Plus	0.0193	0.9899

Total: 100.00%

### Results Summary

Result	Dry
Total Unnormalized Mole%	99.5668
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1020.7136
Gross Heating Value (Btu/Real cu. Ft.)	1022.8343
Real Relative Density	0.5727
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By: \_\_\_\_\_

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## Certificate of Analysis

Cylinder Asset Number: 23647

Sample: Mint Farm Base 1330

Sample Date : 7/9/2008 13:30

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.713	0
CO2	0.1376	0
Methane	97.2242	981.9644
Ethane	1.3905	24.6077
Propane	0.3449	8.678
i-Butane	0.0516	1.678
n-Butane	0.0741	2.4174
i-Pentane	0.0202	0.8082
n-Pentane	0.0166	0.6655
Hexanes Plus	0.0273	1.4003

Total: 100.00%

### Results Summary

Result	Dry
Total Unnormalized Mole%	99.643
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1022.2194
Gross Heating Value (Btu/Real cu. Ft.)	1024.3486
Real Relative Density	0.5725
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By:

Ben Slocum  
Sr. Technician



# McHale Performance

7/16/2008

6430 Baum Dr. Knoxville, TN 865-588-2654

## Certificate of Analysis

Cylinder Asset Number: 23061

Sample: Mint Farm Base 1410

Sample Date : 7/9/2008 14:10

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.649	0
CO2	0.1372	0
Methane	97.2938	982.6674
Ethane	1.3867	24.5404
Propane	0.3411	8.5824
i-Butane	0.0512	1.665
n-Butane	0.0741	2.4174
i-Pentane	0.0202	0.8082
n-Pentane	0.0167	0.6695
Hexanes Plus	0.03	1.5388

Total: 100.00%

### Results Summary

Result	Dry
Total Unnormalized Mole%	99.7362
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1022.889
Gross Heating Value (Btu/Real cu. Ft.)	1025.0215
Real Relative Density	0.5722
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By:

Ben Slocum  
Sr. Technician



## Certificate of Analysis

Cylinder Asset Number: 23644

Sample: Mint Farm Base 1430

Sample Date : 7/9/2008 14:30

Report Date : 7/16/2008

Instrument Used for Analysis: G2801AGC - US10644003

Method Used: ASTM D 1945

BTU/ cu. Ft. Calculated Using: ASTM D 3588-98(2003)

### Component Results

Component Name	Normalized Mole %	Heating Value (Btu/ cu. Ft.)
Nitrogen	0.7086	0
CO2	0.1367	0
Methane	97.2343	982.0664
Ethane	1.3829	24.4732
Propane	0.3498	8.8013
i-Butane	0.051	1.6585
n-Butane	0.0735	2.3978
i-Pentane	0.0199	0.7962
n-Pentane	0.0164	0.6575
Hexanes Plus	0.0269	1.3798

Total: 100.00%

### Results Summary

Result	Dry
Total Unnormalized Mole%	99.7666
Pressure Base (psia)	14.696
Temperature Base (Deg F)	60
Gross Heating Value (Btu/Ideal cu. Ft.)	1022.2306
Gross Heating Value (Btu/Real cu. Ft.)	1024.3596
Real Relative Density	0.5724
Gas Compressibility (Z) Factor	0.9979

Reviewed/Approved By:

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